

# **LILA CANYON MINOR REVISION**

## **007/013**

### **CHAPTERS 1 - 5 COPY 1 of 3**



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For additional information

## **JULY 21, 2008**



**116. Permit Term.**

**116.100.** The anticipated starting and termination dates of the coal mining and reclamation operation are as follows:

<u>Phase</u>	<u>Begin</u>	<u>Complete</u>
Mining Pad, Support Structures, and Portals	June 2005	Dec. 2005
Begin Underground work	June 2005	
Terminate Mining	Dec. 2019	

Reclamation operation dates can be found in Table 3-3.

Approximately 5,992.07 surface acres, which include federal, state and private lands are included within the permit area. These surface acres are described in Table 4-2, and coal acres are shown on Table 4-2A.

The perimeter of the disturbed area contains approximately 42.6 surface acres within the disturbed area but only 33.9 acres will be disturbed leaving 8.7 acres of undisturbed islands within the disturbed area.

**116.200.** The initial permit application is for a five year term with anticipated successive five year permit renewals.

**116.210** Since the initial permit application is for a term of five years this section does not apply.

**116.220** Since the initial permit application is for a term of five years this section does not apply.

**117. Insurance, Proof of Publication and Facilities or Structures Used in Common**

**117.100.** The Certificate of Liability Insurance is included as Appendix 8-2.

## TABLE OF CONTENTS

200	SOILS .....	Page -2-
210	Introduction .....	Page -2-
	211 Premining Soil Resources .....	Page -2-
	212 Topsoil Handling .....	Page -2-
220	Environmental Description .....	Page -2-
	221 Prime Farmland Investigation .....	Page -2-
	222 Soil Survey .....	Page -3-
	223 Soil Characterization .....	Page -6-
	224 Substitute Topsoil .....	Page -6-
230	Operation Plan .....	Page -6-
	231 General Requirements .....	Page -6-
	232 Topsoil And Subsoil Removal .....	Page -9-
	233 Topsoil Substitutes and Supplements .....	Page -14-
	234 Topsoil Storage .....	Page -15-
240	Reclamation Plan .....	Page -17-
	241 General Requirements .....	Page -17-
	242 Soil Redistribution .....	Page -18-
	243 Soil Nutrients and Amendments .....	Page -19-
	244 Soil Stabilization .....	Page -19-
250	Performance Standards .....	Page -20-
	251 Topsoil, Subsoil Removal Maint. Redistribution .....	Page -20-
	252 Topsoil Stockpiles .....	Page -20-

## List of Plates

Plate 2-1	Soils Map
Plate 2-2	Detailed Soils Map of Mine Facilities Site
Plate 2-3	Soil Salvage and Replacement Map
Plate 2-4	Removed from Permit

## List of Appendixes

Appendix 2-1	Prime Farm Land Determination
Appendix 2-2	Soil Descriptions NRCS
Appendix 2-3	Soil Survey (1998)
Appendix A1	Detailed Soil Survey Map
Appendix A2	Salvaged Soils Map

stockpile, reseeding if erosion or other elements cause a loss of vegetation, and maintenance of the ditches and/or silt fence in the stockpile areas.

## 232. Topsoil and Subsoil Removal

**232.100** Prior to topsoil removal, eight five gallon buckets of screened 1/4" cryptobiotic soil will be recovered and stored in a cool dry place for redistribution on the topsoil pile. Topsoil material will be removed from those areas of the mine yard where material will be excavated in order to achieve final yard configuration and which have been identified as suitable topsoil for reclamation based on the soil survey. This includes the access road to and around the topsoil pile. This material will be used to construct a berm around the topsoil pile.

The following volumes represent soil resources that may be available for salvage, storage and subsequent redistribution during reclamation. The actual amount salvaged will be reported to DOGM following topsoil removal and stockpiling operations.

### AVAILABLE SOIL RESOURCES

Map Unit	Potential Salvage Depth In.	Potential Acres	Potential Estimated Volume YD3	Actual Salvage Depth In.	Actual Salvaged Acres	Actual Salvaged Top Soil YD3
SBG	48	11.83	76343	18	11.61	28100
VBJ	30	9.62	38801	18	3.40	8227
XBS	12	12.09	19505	12	8.81	14207
DSH	40	1.56	8389	18	1.16	2809
RBL	8	9.34	10046	8	2.17	2340
RBT	6	3.79	3057	6	0.56	450
<b>TOTAL <sup>(2)</sup></b>		<b>48.23</b>	<b>156141</b>		<b>27.95</b>	<b>56133</b>
Bank to Loose Cubic Yards *1.18 (Amount topsoil pile is designed to hold.)						<sup>(1)</sup> <b>66237</b>

(1) An additional 800 yd<sup>3</sup> will come from the access road around the topsoil pile. This material will be placed in the berm around the topsoil pile.

(2) The 48.23 acres was taken from a soil survey and does not accurately reflect the operators intention to include 42.6 acres of disturbance within the disturbed area boundary.



The actual topsoil salvage will consist of removing a surface layer up to 18 inches thick over the disturbed area. If shale is encountered within 18 inches only the soil above the shale will be salvaged. (Plate 2-3). This would cover about 34 acres where soil would be salvaged and stored in the topsoil stockpile.

Total volumes of soil stored in the topsoil pile would be approximately 56,000 bank cubic yards. Removal of stones and boulders would be considered in volume estimates where they are part of the soil layer removed.

The stockpile has been sized to allow for bulking or swell of the soil as it is removed from the bank state to the loose state. A bulking number of 1.18 has been used. The area allowed for topsoil storage is 56,000 bank cubic yards x 1.18 which equals 66,000 loose cubic yards to be placed on the topsoil pile.

Boulders of approximately three feet in diameter and larger will be separated from the topsoil and piled or placed at appropriate locations such as adjacent to roads, pads etc. No attempt will be made to collect the large boulders into common piles. Boulders above ground level are in addition to topsoil volumes and may account for approximately 10,000 cubic yards.

UEI is not stockpiling large stones "boulders". Boulders will be pushed to the side and left during construction and then upon reclamation the boulders will be pushed back into the approximate location from which they came. Rocks of 36" or less will be stored in the topsoil pile with the soil and will be redistributed with the soil.

The approximate 66,000 loose cubic yards of topsoil will be stored in a topsoil pile as shown on Plate 5-2. This topsoil pile will be approximately 350' long and 250' wide with 2:1 slopes. The height of topsoil pile needed is approximately 31 feet. The pile as designed has the capability of storing well over the required 60,000 cubic yards. See Figure 1 for topsoil pile calculations.

### Lila Canyon Topsoil Calculations

Pile Elevation In Feet	Pile Length In Feet	Pile Width In Feet	Volume L X W CYDS	Volume Ends CYDS	Total Volume Cumulative Cubic Yards
	350	250	3240.74		3240.74
1	346	246	3152.44	22.07	6415.26
2	342	242	3065.33	21.78	9502.37
3	338	238	2979.41	21.48	12503.26
4	334	234	2894.67	21.19	15419.11
5	330	230	2811.11	20.89	18251.11
6	326	226	2728.74	20.59	21000.44
7	322	222	2647.56	20.30	23668.30
8	318	218	2567.56	20.00	26255.85
9	314	214	2488.74	19.70	28764.30
10	310	210	2411.11	19.41	31194.81
11	306	206	2334.67	19.11	33548.59
12	302	202	2259.41	18.81	35826.81
13	298	198	2185.33	18.52	38030.67
14	294	194	2112.44	18.22	40161.33
15	290	190	2040.74	17.93	42220.00
16	286	186	1970.22	17.63	44207.85
17	282	182	1900.89	17.33	46126.07
18	278	178	1832.74	17.04	47975.85
19	274	174	1765.78	16.74	49758.37
20	270	170	1700.00	16.44	51474.81
21	266	166	1635.41	16.15	53126.37
22	262	162	1572.00	15.85	54714.22
23	258	158	1509.78	15.56	56239.56
24	254	154	1448.74	15.26	57703.56
25	250	150	1388.89	14.96	59107.41
26	246	146	1330.22	14.67	60452.30
27	242	142	1272.74	14.37	61739.41
28	238	138	1216.44	14.07	62969.93
29	234	134	1161.33	13.78	64145.04
30	230	130	1107.41	13.48	65265.93
31	226	126	1054.67	13.19	66333.78
32	222	122	1003.11	12.89	67349.78
33	218	118	952.74	12.59	68315.11
34	214	114	903.56	12.30	69230.96
35	210	110	855.56	12.00	70098.52

Figure 1

**Horse Canyon Extension  
Lila Canyon Mine**

**Chapter 3  
Biology**

**Volume 2 of 7**



## TABLE OF CONTENTS

<b>300. BIOLOGY</b> .....	Page -3-
310. Introduction .....	Page -3-
311. Vegetative, fish, and wildlife resources .....	Page -3-
312. Potential impacts .....	Page -3-
313. Proposed reclamation designed .....	Page -3-
320. Environmental Description .....	Page -3-
321. Vegetation Information .....	Page -3-
322. Fish and Wildlife Information .....	Page -4-
323. Maps and Aerial Photographs .....	Page -11-
330. Operation Plan .....	Page -13-
331. The permit area .....	Page -13-
332. The extent and degree of subsidence .....	Page -13-
333. Major Impact .....	Page -16-
340. Reclamation Plan .....	Page -22-
341. Revegetation .....	Page -22-
342. Fish and Wildlife .....	Page -27-
350. Performance Standards .....	Page -27-
351. General Requirement .....	Page -27-
352. Contemporaneous Reclamation .....	Page -27-
353. Revegetation .....	Page -28-
354. Timing .....	Page -29-
355. Mulch .....	Page -29-
356. Standards for Success .....	Page -29-
357. Extended Responsibility Period .....	Page -32-
358. Protection of Fish, Wildlife Values .....	Page -37-

## **List of Tables**

Table 3-1	Threatened and Endangered Species
Table 3-2	Ranking of Wildlife Habitat
Table 3-3	Reclamation Time Table
Table 3-4	Permanent Seed List
Table 3-5	Interim Seed Mixture

## **List of Plates**

Plate 3-1	Wildlife Habitat
Plate 3-1A	Pronghorn (Draft)
Plate 3-2	Vegetation

## **List of Appendixes**

Appendix 3-1	Vegetation Inventory Lila Canyon
Appendix 3-2	Productivity Within and Around the Permit Area
Appendix 3-3	USFWS Correspondence
Appendix 3-4	Threatened and Endangered Species Inventories
Appendix 3-5	Raptor Surveys
Appendix 3-6	UDWR Wildlife Report

### **300. BIOLOGY**

#### **310. Introduction.**

- 311.** Vegetative, fish, and wildlife resources of the permit area and adjacent areas are described in section 320.
- 312.** Potential impacts to vegetative, fish and wildlife resources and methods proposed to minimize these impacts during coal mining and reclamation operations are described in sections 330 and 340.
- 313.** Proposed reclamation designed to restore or enhance vegetative, fish and wildlife resources to a condition suitable for the designated post-mining land use are described under section 340.

#### **320. Environmental Description.**

- 321.** Vegetation Information: The permit application contains the following vegetation information.

**321.100.** This section presents a discussion of the vegetation resources in the Lila Canyon Mine Extension Area and adjacent areas. The work was authorized initially by Kaiser Steel Corporation in 1982 and was referred to as the "South Least Tract." In 1985 Kaiser Coal incorporated a portion of the data from the South Lease and expanded it to include the Horse Canyon mine permit area. In 1990 this data was again updated and used to formulate the Mine Reclamation Plan for the Horse Canyon mine site and adjacent disturbance. This information can be found in the Horse Canyon MRP.

The Lila Canyon mine permit area encompasses a portion of the reclaimed Horse Canyon Mine and virtually all of the South Lease area (See Plate 1-1 Permit Area Map). Aerial photography was used to map the vegetation within the permit area.

A vegetation inventory was commissioned by UtahAmerican Energy, Inc. in 2003 to determine vegetation resources specific to the Lila Canyon Mine surface area. A copy of the report is included in



## Appendix 3-1.

As requested by the Division, Canyon sweetvetch, Cliffs blazing star and creutzfeldt-flower will be surveyed for at least the year construction begins or one year prior to construction.

- 321.200.** A determination of the productivity of the land within and around the permit extension area was implemented by Dean Stacy, Range Management Specialist for the NRCS Natural Resources Conservation Service, and is included in Appendix 3-2. Productivity of the vegetation in the grass-shrub resource area was 450#/acre. The pinyon juniper area to be disturbed the production was estimated to be 250 to 350 #/acre. The pinyon Juniper area, within the disturbed area, will be reclaimed to a grass shrub community.
- 322.** Included in the permit extension application is fish and wildlife resource information for the extension area and adjacent areas.
- 322.100.** The scope and detail of the fish and wildlife resource information presented in this chapter is sufficient to design the protection and enhancement plan.
- 322.200.** Site specific resource information necessary to address the respective species or habitats is included.
- 322.210.** The United States Fish and Wildlife Service publish yearly, in the federal Register, lists of endangered and threatened species. TABLE 3-1 cites federally listed threatened or endangered species which may occur in this area of Utah. Three species listed are potential inhabitants of the general area of Lila Canyon; the black-footed ferret, MSO, and bald eagle.
- The 2000 model for Mexican Spotted Owl Habitat was used to identify potential MSO habitat. The results can be found in Appendix 3-4.

The proposed addition to the permit area does not contain habitat for southwestern willow flycatchers. There are no perennial water sources or riparian areas in either the current permit area or the proposed addition, and according to verbal information from UEI's consultant, there are few, if any, willows or similar riparian-type vegetation associated with the seeps and springs in the proposed addition to the permit area. There may have been a few willows or shrubs, but there were no dense patches as would be required by southwestern willow flycatchers.

Lila Canyon Mine will have below-ground electrical power lines. These lines will be constructed to minimize potential hazards to all raptors new to the site, all will be designed and constructed in accordance with the guidelines set forth in Environmental Criteria for Electric Transmission Systems or as approved by DOGM.

**322.220.**

The permit area for Lila Canyon Mine is located within the Price River Resource Area. Surface water in the adjacent areas drains into Grassy Trail Creek and Cottonwood Wash, both tributaries of the Price River. The environment around the 42.6 acre mine site is within the Upper Sonoran life zone. The dominate Vegetation communities within the proposed disturbed area are pinyon-juniper and grass-shrub. Community types surrounding the proposed disturbed area are primarily pinyon-juniper, mixed conifer, spruce-fir, grass, and sagebrush-grass.

The Upper Sonoran life zone can provide habitat for approximately one hundred and forty-two species of wildlife. Two separate reports by the Utah Division of Wildlife Resources (DWR) identify species having potential to inhabit the

region. The species that is considered to be of high interest in the local area is the Pronghorn. Pronghorns are found as year-long residents within and adjacent to the permit area. These animals were transplanted to this site by the DWR in 1972 and are part of the Iclander Antelope Herd Unit II. Pronghorn prefer open sagebrush-desert and shrub-grassland habitats in areas of the Western United States. They are primarily browsers but are known to forage on grasses and forbs during spring and summer (FWS, 1978).

The pinyon-juniper woodlands, and interspersed sagebrush parks are winter range for mule deer. Many of the drier slopes are essentially juniper stands of scattered trees. The mule deer winter use is restricted to periods when snow is available or surface water is present during snow melt in the early spring, and the UDWR has rated this winter range as high priority.

Elk winter range is located at higher elevations than that of the disturbed area and is not a factor in the disturbed site.

Other wildlife in the pinyon-juniper woodlands are reptiles, passerine birds, lagomorphs, and small rodents.

The talus slopes in the canyon are home to rodents and reptiles. They are also used by chukars. Snake dens are unknown in the talus slopes.

The cliffs are generally north-facing and have potential as raptor nesting sites. Spring raptor inventories were initiated in the spring of 1998. The results of the annual raptor surveys are included in Appendix 3-5.

The intermittent / ephemeral stream channels



TABLE 3-1

## FEDERALLY LISTED ENDANGERED AND THREATENED ANIMAL SPECIES

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Mammals

---

Black-footed ferret (1)

(Mustela nigripes)

Birds

Bald eagle (2)

(Haliaeetus leucocephalus)

\*Southwestern willow flycatcher (2)

Mexican Spotted Owl (3)

(Strix occidentalis lucida)

Fish

Colorado squawfish

(Ptychocheilus lucius)

Bonytail Chub

(Gila elegans)

Humpback Chub

(Gila cypha)

Razorback Sucker

(Xyrauchen texanus)

---

(1) No confirmed sightings have occurred in Utah in recent years.

(2) Nests in Utah.

\* No suitable nesting habitat within the permit area.

(3) Nests in Utah. (See Appendix 3-4 for Mexican Spotted Owl Habitat Survey Plan)

(A complete list of all potential T&E species found in Emery County is included in Appendix 3.3)

lacks riparian vegetation; thus many bird species of high federal interest would not utilize this area example southwestern will flycatcher. The lack of trees or large shrubs precludes the use of woodpeckers. The stream channels do not support fish or an established invertebrate fauna.

The UDWR has submitted general information to be included in the wildlife plans of previous permit applications. Their information covers all the biogeological areas found on the Tavaputs Plateau which includes the Upper Sonoran, Transition, Canadian, and Hudsonian life zones. As noted previously only the Upper Sonoran life zone is represented within the permit area.

This UDWR general information is included in this application because it provides an overall description of the wildlife and wildlife habitats in the general area. The information is also useful in providing habitat information for design of the reclamation of the disturbed area. Thus the past wildlife habitat conditions can be emulated by reclamation and wildlife accommodated as they return to the mine site area upon final reclamation. (See Appendix 3-6, abbreviated)

The DWR has submitted information over the years in commenting on the various wildlife plans submitted in prior permit applications.

The ranking of wildlife values on coal-producing lands in Utah are found in Table 3-2 and are in the following list. The four rankings are in effect until June 30, 2006. The new rankings will have only two categories as shown.

Current

- 1 = Crucial-critical habitat
- 2 = High priority habitat
- 3 = Substantial value habitat
- 4 = Seasonal - Limited

After June 2006

1= Crucial

2= Substantial

**Table 3-2 Ranking of Wildlife Habitat (Prior to 2004)**

<u>Species</u>	<u>Management Area</u>
Rocky Mt. Big Horn (Seasonal)	5,411 Acres
Elk (Winter habitat)	19,840 Acres
Elk (Summer habitat)	1,280 Acres
Mule Deer (Critical)	9,280 Acres
Mule Deer (Year Long)	16,000 Acres
Pronghorn Antelope (Year Long)	12,160 Acres

It is important to note that the actual disturbed area (approximately 42.6 acres) is not critical elk or deer winter range but is habitat for Rocky Mountain Big Horn Sheep.

According to DWR, Rocky Mountain Bighorn Sheep spend all year along the escarpments in the Lila Canyon area of the Book Cliffs. DWR and the Division visited the proposed disturbed area on June 11, 2002. Prior to the visit, the DWR representative was concerned that sheep may need to move further up the cliff when traveling the escarpments because of the mine and that sheep would likely leave the area. After the visit, the DWR representative felt that the sheep use of Lila Canyon may not be affected. The change in opinion may be due to the fact that the DWR representative was not familiar with the specifics of the mine plan until the site visit.

Rocky Mountain Big Horn Sheep appear to have a low tolerance for disturbance. Considering the low population density and the abundance of suitable similar habitat this impact appears to be



slight.

The loss of range for Big Horn Sheep is mitigated and is defined in the Environmental Assessment submitted in association with the Right-Of-Way applications.

The USFWS recognizes that the permit area is within range of endangered species, including the black-footed ferret, MSO, and the bald eagle (Letter dated February 4, 1998, Appendix 3-3).

Raptor surveys were initiated in 1998 and continue annually with the exception of 2004. These surveys were initiated before ground-breaking of the Lila project. The results of these surveys are in Appendix 3-5. The entire Book Cliffs escarpment within the permit area was inventoried for cliff nesting raptors. In addition, a 1-mile buffer zone was inventoried around areas of potential development.

An active golden eagle nest, with young, was documented during the 1999 spring raptor survey. In 2005 nest 946 contained a chick that was possibly dead. USFWS, Laura Roma, UDWR, Chris Colt, and BLM, Dave Mills determined, during the EA process, that there was a high probability these nest sites would be abandoned. A cooperative agreement with the regulatory agencies and UEI was finalized and is made part of the mitigation for the Lila Canyon EA. One nest discussed above, also lies in an area of potential subsidence which is a mute point due to its close proximity to the mine site. Since the nests are located so close to the mine surface facility and that there was a high probability these nest sites would be abandoned, these nests will be mitigated by a prey base off-site vegetation treatment project approved by the USFWS, UDWR and BLM (See page 19 for BLM mitigation information).

Although it was predicted that these nests might be abandoned, the Operator will coordinate closely with USFWS, DWR, and the Division to avoid "take" of golden eagles prior to construction and during operations. Immediately following any raptor survey that shows that the eagles are tending nests or nesting, the operator will contact the USFWS and DOGM. The agencies will immediately coordinate to determine appropriate measures.

Although the Operator will avoid "take", the operator agreed to the BLM-lead mitigation project that is based on the premise that there is sufficient nest sites in the area to accommodate the population base. The limiting factors appears to be available prey base. Mitigation is designed to enhance the prey base while concurrently enhancing habitat for big game, deer, elk, and bighorn sheep.

It is estimated that mining operations will use an average of approximately 81 acre feet of water annually. The USFWS considers that this volume of water will adversely affect the four endangered Colorado River fish. UEL will report actual water depletion values annually in their annual report.

The USFWS recovery program is reasonable and prudent alternative to avoid the likelihood of jeopardy to these fish.

**322.230.** All known species or habitats needing special protection have been addressed.

**322.300.** Copies of the MRP have been submitted to the Division to allow for distribution to USFWS.

**323.** Maps or aerial photographs of the permit area and adjacent areas have been provided. Plates 3-1 and 3-1A are maps that show all critical habitat, raptor nests and all special habitat features. These

plates will be updated on an as needed bases to reflect current conditions such as new raptor nests and/or changes in wildlife use.

**323.100.** The location of the proposed reference area is shown on Figure 1 of Appendix 3-1. Appendix 3-1 is the report for the 2003 vegetation inventory. The reference area for the mine site disturbance was established during the summer of 2003. The reference area was chosen in an area which represents the natural premining conditions of the permit area. The reference area will facilitate the determination of successful revegetation and the resultant final bond release for the Applicant.

**323.200.** Monitoring locations are shown on Plate 3-1 and can also be found on the raptor inventory map in Appendix 3-5.

**323.300.** Protection facilities: There will be no facilities used exclusively for the protection or enhancement of fish and wildlife.

**323.400.** Plate 3-2 Identifies each vegetative type and plant community. The sample locations used during the vegetation inventory can be found on Figure 1 of Appendix 3-1. Wildlife use areas can be correlated to vegetation with the incorporation of the Wildlife Map, Plate 3-1.

Appendix 7-8 provides a description of each water monitoring location. In Summary monitoring locations L-6-G, L-7-G, and L-11-G have a habitat overstory of Douglas Fir-Mountain Brush association. Water monitoring location L-8-G has a habitat of predominantly pinyon - juniper and sagebrush grass associations. Water monitoring locations L-9-G, L-10-G, and L-12-G have some minor wet meadow habitat with an overstory of pinyon-juniper and sagebrush grass immediately adjacent along each side of the sites. Water monitoring sites L-16-G and L-17-G are both seeps and have a habitat of a mix of grasses and salt desert shrub with some invasive tamarisk.

Sites L-1-S, L-2-S, L-3-S, L-13-S, L-14-S and L-15-S are dry washes with a habitat consisting of sagebrush with an overstory of pinion-juniper.

Monitoring site L-4-S and L-5-G are for sediment pond discharge and for the mine discharge and have a habitat consisting of an overstory of pinion-juniper.

**330. Operation Plan.** A plan for protection of vegetation, fish and wildlife resources follows:

**331.** The Lila permit area is approximately 4664.32 acres of which only 42.6 acres are within the surface disturbance area. All incidental disturbance, which will not be utilized in operations, will be revegetated with an interim seed mix proven beneficial to wildlife. The revegetation plan is addressed in Section 341 and the seed mixes are addressed in Tables 3-4 and 3-5. Revegetation will occur the first desirable period following disturbance and/or abandonment.

**332.** The extent and degree of subsidence will be in large dependent on both the amount of overburden as well as the mining method. Employees and or consultants of the operator have numerous years of experience mining the Bookcliffs and Wasatch areas and none have observed nor are aware of any negative impacts on wildlife or vegetation, as a result of subsidence, with the exception of

- 1) Escarpment Failure which is not anticipated.
- 2) Disruption of Surface and / or Ground Water, which is not anticipated.

- (1) Escarpments will be protected by implementing escarpment barriers. An escarpment barrier of a minimum of 200', within which no second mining will take place, will be used to protect all escarpments.
- (2) Disturbance of Surface and / or Ground Water. Considering, the permit area has no surface water with the exception of intermittent or ephemeral flow associated with precipitation events and / or snow melt, subsidence should have no adverse effect. The ephemeral stream channels, in the area's of potential subsidence, will be monitored to insure there are

no adverse impacts to the ephemeral flow.

No negative impacts to vegetation are anticipated. However, vegetation will be monitored in conjunction with subsidence monitoring, utilizing infrared aerial photography once every five years for those areas that are undermined. This will be done in accordance with the subsidence control plan. (See Section 525). Any loss of or diminished appearance of vegetation will be noted, confirmed on the ground, and a corrective plan to mitigate the loss will be submitted to the Division of Oil, Gas, and Mining for their approval and concurrence prior to implementation.

It is anticipated that the saturated zone will most certainly produce some water when intercepted in the course of mining. The effect could be positive in the event the mine were to discharge surplus water to the surface. Assuming the water quality was suitable for wildlife, a valuable enhancement fixture could be sustained at a minimum through the life of the mine. While it is possible subsurface disruption of ground water could occur as a result of subsidence it is problematically slight. (See Appendix 7-3 Probable Hydrologic Consequences (PHC).)

The losses of wildlife habitat and or vegetation through subsidence is not anticipated. The mined portion of the permit area will be monitored visually each spring for evidence of subsidence. In the event vegetation and or wildlife habitat where impacted; mitigation could take the form of: 1) habitat enhancement - through selected manipulation of existing undisturbed areas to increase productivity of preferred forage species, and 2) off site water sources such as construction of guzzlers and stock water impoundments.

Each of the above would need to be analyzed on a site specific bases, taking all agencies (UDWR, UDOGM, and BLM) input into a viable, workable, course of action to be implemented by the mine and as stipulated in the Lila Canyon EA.

**Table 3-3**  
**Time Table of Reclamation**

April 16, 2020	Begin Demolition
November 15, 2020	Complete Demolition
April 16, 2021	Commence Earthwork
August 30, 2021	Completion of Phase 1 (Earthwork) Lower Area
September 1, 2021	Begin Earthwork Road / Portal Upper Area
October 1, 2021	Seeding and Mulching (Weather dependent) Completion of Earthwork Upper Area
November 1, 2021	Fencing
November 15, 2021	Reclamation Completed
July 2025	Ocular Estimates of Success (Remedial seeding if necessary September 2026)
October 2023	Planting Seedlings (If Needed)
July 2027	Quantitative Vegetation Inventory
August 2029	Quantitative Vegetation Inventory Site and Reference Area
August 2034	Quantitative Vegetation Inventory of Referenced Area and Project Site, Bond Release Criteria

The tentative life of a mine is twenty years depending on market and mining conditions. As such, the time table is generic and no set year will be specified for the cessation and abandonment of operations.

- 333. Major Impact:** The major impact to the wildlife in and around Lila Mine site will be loss of habitat. The loss of habitat will occur during the construction of the site, and will be residual throughout the life of the mine. The operational activities at the site will impact the wildlife slightly. But as observed at operations located in both the Book Cliffs and Wasatch plateau, most of the wildlife in the area will either accept or adjust their behavior to coexist with the operation.

The examples below are just some of the observations that the operator has experienced that demonstrates most wildlife accepts or adjusts to coexist with mining operations:

At U.S. Fuel Company, deer were observed crawling under railcars. Deer were observed fawning just inside old portals for three consecutive years.

At Genwal, deer have been observed on a consistent basis crossing a perennial stream to drink from the sediment pond. Bear and elk have been observed on numerous occasions from the bathhouse, office, and parking lot grazing only a few hundred feet away.

At Beaver Creek, deer have been observed drinking from the sediment pond on an almost daily basis. Bear, lion and elk were observed from the bathhouse offices. Deer were observed crawling under low conveyors instead of using a 10' elk crossing only 20' away.

At Kaiser, Rocky Mountain Bighorn Sheep were observed from the mine office on a regular basis.

At Horse Canyon Bighorn Sheep have been observed in and around the #1 and #2 sediment ponds. The Bighorns have been photographed grazing directly across the road from the inactive mine facilities.

Dust abatement and dust control as outlined in Chapter 5, such as covered conveyors, water sprays, and the minimization of large stockpiles will adequately protect adjacent undisturbed area within and surrounding the surface facilities.

It was determined that all nests within a ½ mile radius of the surface



facilities have a high probability of being abandoned by indirect disturbance associated with mine activities. The Lila Canyon EA # UT-070-99-22, outlines mitigation recommended through a cooperative effort between Utah Department of Wildlife Resources, Bureau of Land Management, U.S. Fish and Wildlife and UtahAmerican Energy, Inc. where mitigation would be implemented to increase prey base off-site. The construction of alternative nests was considered to be ineffective. Eagle distribution was not limited by suitable nest sites but by available prey.

An MSO two-year calling survey will be completed according to Appendix 3-4. Results as described in Appendix 3-4 will be reported to the Division, UDWR, and USFWS. This two-year survey will include four night time surveys with no more than one survey prior to end of April and at least three surveys prior to end of July. Results will be submitted to USFWS, DWR, and the Division immediately following of each night time survey. If owls are observed, the agencies will immediately coordinate to determine appropriate measures.

Construction at the mine to upgrade drainage controls and to construct the road will have a minor impact on wildlife in the area. The impact will mainly be increased human activity associated with the construction and a small, less than 42.6 acre, loss of habitat for the mine site, roads and sedimentation pond. These impacts will have little or no affect on the wildlife because they will be completed in an environmentally sound manner.

UEI will instruct all personnel as to current regulations regarding the use of off-road vehicles, firearm regulations, and where current UDWR proclamations are available. This training will be part of the annual refresher offered to all employees. The company will encourage strict compliance with these regulations.

DWR will be notified of any road kills involving large game and request to have them removed to safeguard raptors. Mine personnel will be instructed to remove road kills a safe distance from the road way.

The Lila Canyon Mine has agreed to mitigate the loss of wildlife habitat as well as the potential loss of habitat use due to disturbance.

This mitigation is under advisement of the wildlife professionals of

both the BLM and the Utah Division of Wildlife Resources. The mitigation designed will offset impacts to bighorn sheep, mule deer, elk, and chukker specifically. The mitigation committed to in association with the Lila Mine EA is :

- (1) Install two guzzlers
- (2) Participate in a BLM habitat enhancement program on 76.14 acres-conversion from Pinyon/Juniper to shrubs, forbs, and grasses.

*NOTE: The 76.14 acres is less than the EA 2000 EA acres of 93.11. This difference is a result of the EA evaluating more acreage than what will actually be disturbed. The 2000 EA considered what it calls the Lila Canyon Road which will not be constructed, thus not disturbed. The Lila Canyon Road, not being constructed, refereed to in the EA, contains 16.97 acres. The actual acres for habitat enhancement will be 93.11 -13.23 - 3.74 = 76.14 acres of enhancement.*

The overseeing agency for the EA mitigation/enhancement will be the BLM. The implementation dates, and project locations will not be determined until the BLM notice to proceed is given, after permit approval. The Permittee will submit the BLM mitigation plan as an Appendix to this volume within one year of the initial mine construction. The BLM plan will include: project goal, expected benefits, project procedures, company commitment, implementation dates, project location and agencies contacts.

**333.100.** This section is addressed in 333. And 333.300.

**333.200.** This section is addressed in 333. And 333.300.

**333.300** The goal of the mine is to construct all facilities and conduct mining in such a manner to minimize adverse impacts to wildlife. These measures will include but are not limited to:

1. Interim revegetation with desirable plant species for wildlife, with the exception of transportation corridors.
2. Speed limits on all roads to lesson potential for possible animal/vehicular collisions.
3. Wildlife awareness training to be incorporated

into the annual safety training for all employees.

4. Possible restrictions on firearms on the mine site, and restrictions on off road vehicle usage to lessen disturbance.
5. The Operator will ensure that DWR surveys for cliff nesting raptors within proposed facilities areas at least two years prior and one year following construction. The Operator will conduct annual raptor surveys.

As part of normal mining operation requirements, the Permittee must submit all results of the raptor surveys to the Division in Annual Reports and must immediately contact the Division, BLM, and USFWS following any raptor survey that shows that eagles are tending nests or nesting. The agencies will immediately coordinate to determine if the Permittee must implement appropriate measures. If the agencies recommend mitigation, the Permittee must submit all plans to the Division for incorporation into Appendix 3 of the MRP.

6. An active golden eagle nest, with young, was documented during the 1999 spring raptor survey. The nest is located in the left fork of Lila Canyon within the 1-mile buffer zone. (See Plate 3-1). A consultation with USF&W, BLM, and UDWR was held in the fall of 1999. Line of site and potential mitigation was addressed during this meeting. The results of this consultation are addressed in Sec 322.220 and the Lila Canyon EA. This nest was not active in 2000, 2001, 2002, or 2003. A survey was not done in 2004. In 2005 nest 946 contained a possibly dead chick. (See Appendix 3-5 for updated inventories)
7. The Operator will adhere to exclusionary periods when initiating construction and final reclamation projects. The exclusionary periods include: raptors (Feb 1 - July 15), Bighorn sheep lambing

(May 1 - June 15), and Pronghorn (May 15 - June 20).

In the event of unforeseen changes in construction or mine plans, or in the case of emergency situations that may force the Permittee to conduct activity near or within the 0.5 mile buffer zone of raptor nest and during raptor exclusionary periods (February 1 to July 15 for golden eagles), the Permittee will immediately contact the Division, BLM, DWR, and USFWS. The agencies will immediately coordinate to determine appropriate measures that may include conducting ground surveys, in coordination with DWR, to determine if birds are tending nests or nesting and possibly determine the life stage of the offspring; developing a mitigation plan, in coordination with the agencies, for possible impacts to nests or birds; or ceasing operations until the end of breeding season to avoid 'take'. If the agencies recommend surveys, the Permittee must submit all survey results to the Division in Annual Reports. If the agencies recommend mitigation, the Permittee must submit all mitigation plans to the Division for incorporation into Appendix 3 of the MRP.

The Applicant does not plan to monitor any wildlife species during the life of the operation with the exception of raptors. Spring raptor surveys will be conducted at a minimum of a 1-mile radius around any new or potentially disruptive mining activity, 2-years prior and annually after the proposed activity. The Operator will contact the USFWS and the Division immediately following raptor surveys if raptors are observed tending nests or nesting.

The mine will emphasize their commitment to legal requirements of firearm and off-road vehicle-use by employees. This type of program has been adopted by the operator and will continue throughout the operation. An education program aimed at minimizing potential negative impacts by employees will be presented

during the Operators annual retaining programs. Employees will be informed about the wildlife in the area and about which species are protected. They will be counseled to refrain from poaching or harassing animals and about the need to preserve the wildlife. They will also be instructed on the danger of animals on the road during dusk and night hours and consequently the need to reduce speed to avoid colliding with animals difficult to see in these periods of poor light. All threatened or endangered wildlife sighted within or adjacent to the permit area will be reported to the appropriate state and / or federal agency.

The location and construction of the haulage road, as well as measures for the protection of surface hydrology, from sedimentation, including the sedimentation pond and other drainage control structures, are discussed in Chapter 7, Hydrology.

Any waters discharged from the facility will be monitored in accordance with UPDES Permit No.UTG040024. Major disturbances will be scheduled to avoid deer / antelope fawning times.

No use of pesticides or chemicals that have serious consequences to plants or wildlife will be used on the permit area, unless recommended by a regulatory agency and under their direction.

Prevention of fires and their spreading outside the permit area will be accomplished through; water sprays, and fire extinguishers located at all facilities . Wild fires will be addressed by the appropriate state and federal agencies. Operation and reclamation activities will be done in compliance with the Endangered Species Act of 1973. As instructed by the Bureau of land Management and the Utah Division of Wildlife Resources, fencing will be removed when DOGM determines that all reclamation standards have been met. Further measures taken to enhance wildlife habitat during reclamation are discussed under the "Reclamation Plans" section of this chapter.

The interim reseeding of small areas will provide some

small amounts of additional forage and seed. Reseeding will particularly benefit rodents and passerine birds seeking seeds in this sparse vegetative type. The seeding of sediment pond slopes usually provides a bonus crop of seeds as the plants are watered by intermittent runoff.

Within the disturbed area, there are areas of undisturbed ground such as in topsoil storage areas. These areas will be posted so as to preclude trespass by vehicles and/or mine equipment. In addition, dust control will be practiced throughout the life of the mine to minimize impacts from blowing dust .

The sediment pond on the disturbed area will hold water during short periods and will provide some additional surface water for wildlife. The stored water may prolong use of that portion of the winter range by deer because water is often the limiting factor on dry winter ranges. Migrating small birds and mourning doves will also utilize this water to recuperate during their flights, as well as a small indigenous flock of chukkers. In the event the water in the pond were to contain any material which would be hazardous to wildlife (ex: oil, grease), the material would be removed by the use of petroleum selected filtration material. The filtration material will be used when an apparent sheen is visible on the pond. If hazardous materials are observed the Division will be notified immediately to develop a protection plan for wildlife. The pond will be monitored visually daily by surface personnel for signs of oil and grease.

**340. Reclamation Plan.**

A reclamation plan for final revegetation is presented below.

**341.100.** TABLE 3-3 is a timetable of reclamation activities upon cessation of operation. The tentative life of a mine is twenty years depending on market and mining conditions. As such, the time table is generic and no set year will be specified for the cessation and abandonment of operations.

**341.200.** This section is addressed in 341.210.

**341.210.** TABLE 3-4 indicates the species and amounts per acre of seeds to be used in revegetation.

The seed mixture used to revegetate the disturbed areas at Lila Canyon Mine is given on TABLE 3-4, along with the rates of application. The seed mixture was developed for the disturbed area with respect to a number of considerations. Climatic conditions of area and the availability of water were reviewed to assess the need for drought-tolerant species. The vegetation information was evaluated to determine the seed mixture needs corresponding to productivity, cover and diversity requirements. Data was gleaned from the soils report to select species adapted to the physical and chemical characteristics of the potential seedbed.

**341.220.** The disturbed area will be reclaimed after all operations have ceased at the mine site and all pertinent structures have been removed. The coal will be loaded out and the surface will be left relatively free of debris. The area will be recontoured to approximate pre-mine configurations. The soil will then ripped to a depth of 16 -18 inches.

The previously salvaged top soil will then be redistributed over the total disturbed area. Soil depth and soil cover are addressed in Chapter 2.

The seedbed will be prepared by completing the final grading and again either gouged or ripped to a depth of 6-18 inches or to bedrock. Ripping the soil will be completed at a speed that maximizes the action of the ripper shanks and promotes spoil material disruption to the required depth.

During the final ripping or gouging process, seedbed material will be collected and sent to a



laboratory for analysis to determine fertilizer requirements. The fertilizer recommendations will be added to the soil at the specified rate of application. Seed and fertilizer will be distributed utilizing a hydroseeder. Fertilizer and seed will not be mixed during hydroseeding operations.

Hydroseeding operations will not be conducted when wind velocities would interfere with the even distribution of the material. All efforts will be made to attain an even distribution of seed. (See Appendix 5.8)

Once Hydroseeding is complete, the area will be hydromulched, see Appendix 5-8 and Section 341.230.

The area will be seeded and fertilized (if needed) with the recommended species ( see TABLE 3-4), and nutrients at the specified rate of application. At present a general recommendation indicates that 100 pounds per acre of 16-16-8 will need to be added as a nutrient.

All efforts will be made to insure the quality of materials purchased for reclamation activities are maintained throughout all work. Commercially purchased seed will have the seed names, lot number, percentages of purity, germination, hard seed and percentage of maximum weed seed count clearly marked on each container. No seed will be accepted if they contain seeds of a state-recognized noxious weed species. Sources for "common" seed should be those with climatic and elevational characteristics as close to site characteristics as possible. Legume seed will be inoculated with the correct Rhizobium.

**341.230.** The site will be hydro-seeded with seed and an initial 500#/acre of mulch and 100#/acre of tac

agent. Followed shortly by an additional 1500 to 2000#/acre of mulch. Finally, an additional 100#/acre of tac and fertilizer, choice and application rate to be determined by the testing in section 243, will be applied. Fertilizer and seeds will not be mixed together during the hydro-mulching operations.

**341.240.** There will be no irrigation or supplementary water used during or after the revegetation of the area. There are no planned pest or disease control measures for the mine site reclamation. Pest or disease control measures may be included in this plan if results from the test plot and / or reference area indicate a need. The measures will be consistent with proper rangeland and wildlife management.

**341.250.** A reference area for the mine site disturbance was established adjacent to the proposed facilities during the summer of 2003 (Figure 1, Appendix 3-1). The reference area was chosen in an area which represents the natural premining conditions of the permit area. This reference area will facilitate the determination of successful revegetation and the resultant final bond release for the Applicant.

Comparisons of the revegetated area and the reference area will be made using the data obtained from the ninth and tenth year sampling. This data will be used to obtain statistical information that will show the site meets the requirements for bond release.

**341.300.** The methods outlined have a proven performance based on the successful reclamation of the Horse Canyon Mine in the immediate drainage to the north (less than two miles) in like habitat and aspect.

The Operator will conduct a study to determine the optimum time for seeding warm seasons species (refer to page 29).

<b>Table 3.4/3.5</b> <b>INTERIM AND FINAL RECLAMATION SEED MIX</b> <b>Recommended Seed Mix for Lila Canyon Mine</b>							
Species	Latin Name	Seeds/lb	# Seeds per Acre Planted	% Mix Planted	Seeding Rate Lbs / acre	Seeds / ft <sup>2</sup>	
<b>Grasses</b>							
Needle And Thread	Stipa Comata	115,000	230,432	5	2.00	5.3	
Indian Ricegrass	Achnatherum humenoides	141,000	282,269	6	2.00	6.5	
Basin Wild Rye	Leymus cinereus	130,000	129,373	3	1.00	3.0	
Galleta	Hilaria jamesii	314,500	313,632	6	1.00	7.2	
Bluebunch Wheatgrass	Pseudoroegneria spicata	140,000	139,392	3	1.00	3.2	
Slender Wheatgrass	Elymus trachycaulus	159,000	317,988	6	2.00	7.3	
Blue Gamma	Bouteloua gracilis	825,000	827,640	17	1.00	19.0	
Subtotal						51.4	
<b>Forbs</b>							
Blue Flax	Linum lewisii	293,000	294,030	6	1.00	6.8	
Palmer Penstemon	Penstemon palmeri	610,000	152,460	3	0.25	3.5	
Globe mallow	Sphaeralcea ambigua	500,000	250,470	5	0.50	5.8	
Indian Paintbrush	Castilleja linariaefolia	4,915,000	479,160	10	0.10	11.0	
Fringed Sage	Artemisia frigida	4,536,000	435,600	9	0.10	10.0	
Subtotal						37.0	
<b>Shrubs</b>							
Wyoming Big Sage	Artemisia tridentata	2,576,000	653,400	13	0.25	15.0	
Green Rabbitbrush	Chrysothamnus nauseosus	400,000	41,382	1	0.10	1.0	
Fourwing Saltbush	Atriplex canescens	52,000	43,560	1	0.84	1.0	
Winterfat	Ceratoides lanata	56,700	56,628	1	1.00	1.3	
Shadscale	Antriplex confertifolia	64,900	64,904	1	1.00	1.5	
Cliffrose	Cowania mexicana	64,600	64,469	1	1.00	1.5	
Black Sage	Artemisia nova	907,200	230,868	5	0.25	5.3	
Subtotal						26.5	
TOTAL PER ACRE		16,799,900	5,007,658	100	16.39	115	

**342. Fish and Wildlife. A fish and wildlife plan follows:**

**342.100.** The sediment pond will be maintained through the life of the operation and will be removed when effluent criteria is met following reclamation.

**342.200.** Rangeland for domestic stock is the secondary intended postmining land use with wildlife habitat as the primary land use. Plant species appropriate for enhancing the wildlife habitat were selected on the basis of known wildlife requirements including nutritional value for fish and wildlife, use as cover for fish and wildlife and ability to support and enhance fish and wildlife habitat. The Pinyon/Juniper area will be enhanced and reclaimed to the Grass/Shrub community type. The habitat type provides excellent winter range for big game, as well as, an increase in rodent populations which in turn are beneficial to raptors. The Lila Canyon EA has stipulated that in excess of 70 acres of wildlife habitat will be enhanced to help offset negative impacts.

**342.210.** This section is addressed in 342.200.

**342.220.** This section is addressed in 342.200.

**342.230.** This section is addressed in 342.200.

**342.300.** This section is not applicable.

**342.400.** This section is not applicable.

**350. Performance Standards**

**351.** All coal mining and reclamation operations will be carried out according to plans provided under R645-301-330 through R645-301-340.

**352.** Lila Canyon Mine will implement contemporaneous reclamation on all areas that are disturbed through construction or in the course of mining that will not be utilized for future activity that constitutes continued disturbance.

**353.** General Requirements. The Permittee will establish on regraded areas and on all other disturbed areas a vegetative cover that is in accordance with the approved permit and reclamation plan. The first available season following abandonment / completion the area will be seeded and mulch in accordance with the approved reclamation plan.

**353.100** The contemporaneous seed mix TABLE 3-5 is capable of self-regeneration.

The seed mix in Table 3-5 is designed to be compatible with native plant species and beneficial to the animals indigenous to the area for both forage and cover.

All seed used in contemporaneous revegetation will be certified and in compliance with all state and federal laws governing seeding.

**353.130.** The vegetative cover will be at least equal in extent of cover to the natural vegetation of the area; and

**353.140.** Capable of stabilizing the soil surface from erosion.

**353.200.** The reestablished plant species will:

**353.210.** Be compatible with the approved postmining land use:

**353.220.** Have the same seasonal characteristics of growth as the original vegetation:

**353.230.** Be capable of self-regeneration and plant succession:

- 353.240.** Be compatible with the plant and animal species of the area; and:
- 353.250.** Meet the requirements of applicable Utah and federal seed, poisonous and noxious plant; and introduced species laws or regulations.
- 353.300.** The Division may grant exception to the requirements of 353.220 and 353.230 when the species are necessary to achieve a quick-growing, temporary, stabilizing cover, and measures to establish permanent vegetation are included in the approved permit and reclamation plan.
- 353.400.** There are no prime farm lands within the permit area or anticipated crop lands.
- 354.** Timing: Seeding will occur between September 30 and may proceed up until March 30 depending on snow and frost condition
- DOGM has expressed a concern over the fall planting of the warm season species, Blue grama and Galleta. Both of these species are in evidence at the Horse Canyon Site, which was reclaimed in the fall of 1991. However, UEI is committed to use these species in the interim seed mix, adjacent to the sediment pond. Area 1, the Southeast corner, and Area 4 the Northwest corner of the pond disturbance, will be seeded mid summer (July) following the construction. Area 2, the Southwest quarter and Area 3 the Northeast quarter of the disturbance, will be seeded late fall (October) following construction. The line separating the four areas will be staked on the ground. Ocular estimates of the success of the reclamation will be implemented each fall for 3 years following the reclamation. In year 4, if there appears to be an apparent difference in success, a quantitative sample will be taken. The sample will identify both species composition as well as overall vegetative cover for both areas.
- If in the event a conclusion as to the timing of planting results in a significant degree of success, the reclamation plan can be modified during the 5 year renewal process.
- 355.** Mulch will be applied on the same bases as indicated for permanent

reclamation.

**356. Standards for Success:**

**356.100** Success of revegetation will be judged on the effectiveness of the vegetation for the approved postmining land use, the extent of cover compared to the extent of cover of the reference area.

**356.110.** Standards for success, statistically valid sampling techniques for measuring success, and approved methods are identified in the Division's "Vegetation Information Guidelines, will be followed closely. (See "Lila Canyon Vegetation Inventory" found in Appendix 3-1)

**356.120.** Standards for success recommended in the "Vegetation Information Guidelines" will be followed closely. (See "Lila Canyon Vegetation Inventory" found in Appendix 3-1)

**356.200.** Standards for success will be applied in accordance with the approved postmining land use of wildlife and incidental use by domestic stock.

**356.210.** This Section does not apply since the area is post mining wildlife habitat, with incidental use by domestic stock.

**356.220.** This Section does not apply since there are no agriculture lands within the permit area and no prime farm lands. See Chapter 2, Appendix 2-1 (Prime Farmland Letter).

**356.230.** Success of vegetation will be determined on the basis of tree and shrub stocking and vegetative ground cover. Such parameters are described as follows:

The requirements for cover, productivity



and woody plant density are, at least 90% of the cover, woody plant density and productivity of the reference area with 90% statistical adequacy. The site will be sampled in a manner similar to the method used to sample the reference area.

Diversity will be determined with the following method:

- 1) All species encountered with at least a 20% frequency in the vegetation sampling will be categorized into life forms. The life form categories that will be used are native grass, native broadleaf forbs, native shrub, desirable introduced, and undesirable. Undesirable species are those generally classified as weeds or that are poisonous to livestock. If there is any question whether a species should be considered undesirable, the Division and UtahAmerican will consult with the Emery County Weed Department.
- 2) The standard will be that the reclaimed area must have at least as many native grass, native broadleaf forbs, and native shrub species occurring at 20% or greater frequency as the reference area. For example, if the reference area has 3 native shrub species occurring at 20% or greater frequency, the reclaimed area must also have this many species. The species do not need to be the same.

Essentially the same method would be used to judge seasonality, but the only categories would be warm and cool season.

Erosion control relative to both vegetation density and species composition would be based on effluent standards as committed in the

UDPES permit. All drainages leading away from the permit area will be sampled as often as practical. When effluent standards are met, the vegetation will have demonstrated its erosion control effectiveness. Woody plant density for the entire area will be established with 1,500 plants per acre, unless the Divisions consultation with area agencies determines a different density.

**356.231.** (See Section 256.230)

**356.232.** Tree stocking / woody plant density will meet or exceed UDOGM guidelines for bond release.

**356.233.** Success standards for vegetative ground cover: (See Section 256.230)

**356.240.** This Section does not apply since no portion of the permit area will be used for industrial, commercial or residential use.

**356.250.** No pre-law mining occurred on the Lila Canyon Permit area.

**356.300.** Lila Canyon Mine is committed to maintain siltation structures until vegetative cover is adequate to allow runoff to meet affluent limits as directed by UDOGM at a minimum two years following vegetation establishment.

**356.400.** Lila Canyon Mine will have all disturbance associated with removal of siltation structures seeded and mulch in accordance with the approved revegetation plan.

**357. Revegetation: Extended Responsibility Period.**

- 357.100.** The period of extended responsibility for successful vegetation will begin after the last year of seeding, fertilization, irrigation, or other work, excluding approved husbandry practices.
- 357.200.** Vegetation parameters will equal or exceed the approved success standard during the growing seasons for the last two years of the responsibility period. The period of extended responsibility will continue for five or ten years based on precipitation data.
- 357.210.** Since Lila Canyon has an average annual precipitation of less than 26.0 inches this section is not applicable.
- 357.220.** The mine plan area averages nine inches at the lowest elevation (area of greatest disturbance) to fourteen to sixteen inches at the highest elevation. Lila Canyon Mine will assume the ten year bond liability period.
- 357.300.** Husbandry Practices - General Information
- 357.301.** Lila Canyon Mine would like to reserve the right to apply for augmentation of reclaimed area extending the bond liability period on a site specific case scenario.
- 357.302.** Husbandry practices proposed for the reclaimed areas are not necessitated by inadequate grading practices, adverse soil conditions, or poor reclamation procedures.
- 357.303.** The Division will consider the entire area that is bonded within the same increment, as defined in R645-301-820.110, when calculating the extent of area that may be treated by husbandry practices.
- 357.304.** If it is necessary to seed or plant in excess of the limits set forth under R645-301-357.300, the Division may allow a separate extended

responsibility period for these reseeded or replanted areas in accordance with R645-301-820.330.

**357.310. Reestablishing trees and shrubs**

**357.311.** Trees or shrubs may be replanted or reseeded at a rate of up to a cumulative total of 20% of the required stocking rate through 40% of the extended responsibility period.

**357.312.** Lila Canyon Mine has incorporated wood plant / tree seeding into the seed mix (see TABLE 3-4). If after two years following seeding and mulching it is apparent that woody plant density / tree cover appear to be insufficient for bond release; the mine may elect to re-enter selected areas and augment the direct seeding with either / or containerized or bare root seedlings, this determination will need to be made on a site specific bases. The goal for bond release is the establishment of 1500 woody plants per acre.

**357.320.** Based on similar reclamation projects in adjacent areas, the need to control weeds other than by selected removal is unlikely. In the unlikely event that weed control is required by chemical means, R645-357.321 will be followed. In the unlikely event that weed control is required by Biological means, R645-357.323 will be followed. In the unlikely event that weed control is required by mechanical means, R645-357.322 will be followed.

**357.321.** In the unlikely event that weed control is required by Chemical means, R645-357.321 will be followed by mine personnel.

- 357.322.** In the unlikely event that weed control is required by Mechanical means, R645-357.322 will be followed by mine personnel.
- 357.323.** In the unlikely event that weed control is required by Biological means, R645-357.323 will be followed by mine personnel.
- 357.324.** In the unlikely event that weed control practices damage desirable vegetation, R645-357.324 will be followed by mine personnel.
- 357.330.** Wildlife habitat is the priority post mining land use. As such, control of wildlife is not anticipated.
- 357.331.** Wildlife habitat is the priority post mining land use. As such, control of wildlife is not anticipated.
- 357.332.** Mine personnel do not anticipate a need to implement control measures for small mammals or insects. However, in the unlikely event that control is necessary, R645-357.332 will be followed. The Division must approved animal control methods sited in R645-357.332.
- 357.340.** Natural Disasters and Illegal Activities Occurring After Phase II Bond Release. Where necessitated by a natural disaster, excluding climatic variation, or illegal activities, such as vandalism, not caused by any lack of planning, design, or implementation of the mining and reclamation plan on the part of the Permittee, the

seeding and planting of the entire area which is significantly affected by the disaster or illegal activities will be allowed as an accepted husbandry practice and thus will not restart the extended responsibility period. Appendix C of the Division's "Vegetation Information Guidelines" references publications that show methods used to revegetate damaged land. Examples of natural disasters that may necessitate reseeding which will not restart the extended responsibility period include wildfires, earthquakes, and mass movements originating outside the disturbed area.

**357.341.** The extent of the area where seeding and planting will be allowed will be determined by the Division in cooperation with the Permittee.

**357.342.** All applicable revegetation success standards will be achieved on areas reseeded following a disaster, including R645-301-356.232 for areas with a designated postmining land use of forestry or wildlife.

**357.343.** Seeding and planting after natural disasters or illegal activities will only be allowed in areas where Phase II bond release has been granted.

**357.350.** No Irrigation is anticipated.

**357.360.** Rills and gullies in excess of eight inches width and / or depth will be repaired on a seasonal bases. Repairs will be made in such manner that minimizes additional disturbance and yet is cost effective based on site specific conditions.

- 357.361.** After the first 20% of the extended responsibility period but prior to the end of the first 60% of the responsibility period or until Phase II bond release, whichever comes first, highly erodible area and rill and gully repair will be considered augmentative, and will thus restart the responsibility period, if the area to be repaired is greater than 3% of the total disturbed area or if a continuous area is larger than one acre.
- 357.362.** The extent of the affected area will be determined by the Division in cooperation with the Permittee.
- 357.363.** The area affected by the repair of highly erodible areas and rills and gullies is defined as any area that is reseeded as a result of the repair. Also included in the affected areas are interspacial areas of thirty feet or less between repaired rills and gullies. Highly erodible areas are those areas which cannot usually be stabilized by ordinary conservation treatments and if left untreated can cause severe erosion or sediment *damage*.
- 357.364.** The repair and/or treatment of rills and gullies which result from a deficient surface water control or grading plan, as defined by the recurrence of rills and gullies, will be considered an augmentative practice and will thus restart the extended responsibility period.
- 357.365.** The areas of concern on the initial

reclamation are those natural drainage channels which will be reconstructed during the earth moving phase of reclamation. Specific design and specifications are included in Chapter 7 (Drainage Design). All regraded areas in excess of three percent slope will be sacrificed to aid in the retention of moisture and minimize erosion. Areas in excess of 3:1 slopes will receive additional mulch and top to facilitate vegetation establishment.

- 358.** Protection of Fish, Wildlife Values: Mine personnel will be trained annually on environmental awareness, a portion of the training will deal with wildlife concerns, such as avoidance during stress periods, caution in driving to and from work during peak usage periods, recognition of any threatened and endangered species etc. Speed limits will be posted to minimize vehicular / wildlife accidents. In addition, all suitable water encountered during mining will be discharged in such a manner to make it available to wildlife.

- 358.100.** Appendix 3-3 is a letter from U.S. Fish and Wildlife Service identifying all threatened and endangered species that could occur in the permit area or within a one-half mile proximity. All mine personnel will be trained about these species and notify the environmental coordinator at the mine. The environmental coordinator will confirm, if possible, the identification, notify USFWS and the Division, and then take what ever actions are necessary to safeguard both the species and it's habitat.

In addition, a threatened and endangered species inventory will be conducted prior to any disturbance. Historical as well as current threatened and endangered inventories are included in Appendix 3-4.



Prior to any new surface disturbance a raptor inventory will be conducted to ensure that no raptors or their nests or young would be adversely impacted through any mining or mine related activity. A copy of historical raptor data as well as current survey results are attached as Appendix 3-5.

A one-half mile buffer zone of no new disturbance during critical nesting periods will be maintained during that portion of the year that the nest sites are active.

As part of normal mining operation requirements, the Permittee must submit all results of the raptor surveys to the Division in Annual Reports and must immediately contact the Division, BLM, and USFWS following any raptor survey that shows that eagles are tending nests or nesting. The agencies will immediately coordinate to determine if the Permittee must implement appropriate measures. If the agencies recommend mitigation, the Permittee must submit all plans to the Division for incorporation into Appendix 3 of the MRP.

In the event of unforeseen changes in construction or mine plans, or in the case of emergency situations that may force the Permittee to conduct activity near or within the 0.5 mile buffer zone of raptor nest and during raptor exclusionary periods (February 1 to July 15 for golden eagles), the Permittee will immediately contact the Division, BLM, DWR, and USFWS. The agencies will immediately coordinate to determine appropriate measures that may include conducting ground surveys, in coordination with DWR, to determine if birds are tending nests or nesting and possibly determine the life stage of the offspring; developing a mitigation plan, in coordination with the agencies, for possible impacts to nests or birds; or ceasing operations until the end of breeding season to avoid 'take'. If the agencies recommend surveys, the Permittee must submit all survey results to the Division in Annual Reports. If the agencies recommend mitigation, the Permittee must submit all mitigation plans to the Division for incorporation

- 358.200.** No coal mining and reclamation operations will be conducted in a manner which would result in the unlawful taking of a bald or golden eagle, its nests, or any of the eggs.
- 358.300.** This section is addressed in 358.200.
- 358.400.** There are no wetlands and / or riparian areas within the area of potential disturbance.
- 358.500.** Each operator will, to the extent possible using the best technology currently available:
- 358.510.** All power and transmission lines will be designed with the best technology available to safeguard raptors.
  - 358.520.** All structures; fences, conveyors etc., will be designed to allow free movement of large mammals except in those areas where it is necessary to preclude large animals for their own safety; example: power substations, oil storage area etc.
  - 358.530.** All structures; fences, conveyors etc., will be designed to allow free movement of large mammals except in those areas where it is necessary to preclude large animals for their own safety; example: power substations, oil storage area etc.

Appendix 5-8. Includes areas of undisturbed within the disturbed area.

Top Soil removal / Actual Disturbance:

33.86 Acres discussed in Section 232.100" This is the actual area anticipated to be disturbed for the life of the mine.

The permit area for the Lila Canyon mine is depicted on Plate 4-1. Included in this map are: the boundary of the permit area, the area which will include surface facilities, and the new portals. Existing roads, power lines, and railroads are identified. Private, federal, and state ownership are also identified on this plate. Wildlife habitats have been identified on Plate 3-1 and grazing allotment boundaries are depicted on Plate 4-2.

Table 4-1 lists the various owners of land within and around the permit area. The permit area is approximately 5992.07 acres. Within the permit area, 1446.64 acres comprise private land and 289.06 acres comprise state lands. The remaining 4,256.37 acres is federal land owned and managed by the United States Bureau of Land Management (BLM). Table 4-2 describes the surface ownership and Table 4-2A describes the coal ownership of the permit and surrounding area.

Lila Canyon lies within a region identified by the BLM as the Range Valley Mountain Habitat Management Plan Area ( U-6-WHA-T4). This region was designated as such by a technical committee comprising state, federal, local government agencies and private citizens. This Habitat Management Plan area was established in September 1991 to provide management for the wildlife species of the area, including federally protected wildlife and plant species, big game, upland and small game waterfowl, unique and limited high value wildlife habitat, and access management. Big game and raptor habitat within the Lila Canyon Mine permit area, along with the Range Valley Mountain HMA, have been identified on Plate 3-1.

**Horse Canyon Extension  
Lila Canyon Mine**

**Chapter 5  
Engineering**

**Volume 4 of 7**

## Table of Contents

500.	ENGINEERING	Page -1-
510.	Introduction	Page -1-
511.	General Requirements.	Page -1-
512.	Certification	Page -3-
513.	Compliance With MSHA Regulations and MSHA Approvals.	Page -4-
514.	Inspections.	Page -4-
515.	Reporting and Emergency Procedures.	Page -6-
516.	Prevention of Slides:	Page -8-
520.	Operation Plan.	Page -8-
521.	General:	Page -19-
522.	Coal Recovery.	Page -25-
523.	Mining Methods:	Page -26-
524.	Blasting and Explosives:	Page -28-
525.	Subsidence:	Page -34-
526.	Mine Facilities.	Page -46-
527.	Transportation Facilities.	Page -50-
528.	Handling and Disposal	Page -51-
529.	Management of Mine Openings:	Page -54-
530.	Operational Design Criteria and Plans.	Page -55-
531.	General.	Page -55-
532.	Sediment Control:	Page -57-
533.	Impoundments.	Page -58-
534.	Roads.	Page -58-
535.	Spoil:	Page -60-
536.	Coal Mine Waste.	Page -60-
537.	Regraded Slopes.	Page -60-
540.	Reclamation Plan.	Page -61-
541.	General.	Page -63-
542.	Narratives, Maps and Plans.	Page -63-
550.	Reclamation Design Criteria and Plans.	Page -63-
551.	Casing and Sealing of Underground Openings.	Page -63-
552.	Permanent Features.	Page -66-
560.	Performance Standards.	Page -66-

## **List of Appendixes**

Appendix 5-1 Inspection Form for Excess Spoil  
Appendix 5-2 Inspection Form for Impoundments  
Appendix 5-3 Coal Mine Waste Fire Extinguishing Plan  
Appendix 5-4 New Facility Designs  
Appendix 5-5 Slope Stability Analysis  
Appendix 5-6 Mine Openings (Closures)  
Appendix 5-7 Rock Slope Material (Refuse Pile)  
Appendix 5-8 Reclamation Plan

## **List of Plates**

Plate 5-1	Previously Mined Areas
Plate 5-1A	Premining Contours
Plate 5-2	Surface Area Lila Canyon Mine (Official Disturbed Area Boundary Map)
Plate 5-3	Subsidence Control Map
Plate 5-3 CONFIDENTIAL	Subsidence Control Map with Raptor Information
Plate 5-4	Coal Ownership
Plate 5-5	Mine Map
Plate 5-6	Post Mining Topography
Plate 5-7A-1	Mine Site Cross Sections
Plate 5-7A-2	Mine Site Cross Sections
Plate 5-7A-3	Mine Site Cross Sections
Plate 5-7A-4	Mine Site Cross Sections
Plate 5-7B-1	Mine Site Cross Sections
Plate 5-7B-2	Mine Site Cross Sections
Plate 5-7B-3	Mine Site Cross Sections
Plate 5-7C	Reclaimed Profile
Plate 5-8	Coal Handling Facilities
Plate 5-9	Portal Plan and Sections

## Chapter 5

### 500. ENGINEERING

#### 510. Introduction

This section presents the engineering portion for the Lila Canyon Extension to the Horse Canyon Mine Reclamation Plan and is based upon previous publications, permit applications for the adjacent Sunnyside and South Lease areas and design which follows basic engineering standards. The objective of this chapter is to provide sufficient engineering design to support the mining and reclamation plan for the Lila Canyon Mine which is part "B" of the Horse Canyon Permit (ACT/007/013) and to satisfy the rules found in R645-301-500. All of the activities associated with the coal mining and reclamation operations are designed, located, constructed, maintained, and reclaimed in accordance with the operation and reclamation plan. The engineering section of the permit application is divided into the introduction, the operation plan, operational design criteria, reclamation plan, and performance standards. All design criteria associated with the operation and reclamation plan have been met.

#### 511. General Requirements.

- 511.100** The permit application includes a description of the proposed coal mining and reclamation operations with appropriate maps, plans, and cross sections.
- 511.200** A description of the proposed mining operation and its potential impacts to the environment as well methods and calculations utilized to achieve compliance with design criteria is addressed within this chapter.
- 511.300** A description of the proposed reclamation plan is included in this chapter.

#### 512. Certification

- 512.100.** Cross Sections and Maps that require certification have been prepared by, or under the direction of, and certified by a qualified, registered, professional engineer, with assistance

from experts in related fields when needed. Cross Sections and Maps will be updated as needed or required by the Division. Listed below are some of the maps and cross sections that have been certified by a qualified registered professional engineer.

- 512.110.** A map showing the extent of known existing mine workings and the approximate year mined has been included and certified by a qualified registered professional engineer and included as Plate 5-1.
- 512.120.** All Surface facilities and operations are shown on the appropriate maps and have been certified by a qualified registered professional engineer.
- 512.130** Maps showing final surface configuration with cross sections have been included and certified by a qualified registered professional engineer. (See Plate 5-6, 5-7c, and Appendix 5-4)
- 512.140** Appropriated hydrology drawings and cross sections have been certified by a qualified registered professional engineer. (See Chapter 7)
- 512.150** Geologic cross sections and maps that are required to be, have been certified by a qualified registered professional engineer. See Chapter 6 and Plate 7-1B.
- 512.200** Plans and Engineering Designs which may include: Excess spoil piles, durable rock fills, coal mine waste, impoundments, primary roads and variances from approximate original contour. These Plans and Designs have been certified by a qualified registered professional engineer if appropriate.
- 512.210** Lila Canyon Mine is an underground operation, therefore it is anticipated that no excess Spoil will be produced. This section does not apply.
- 512.220** The professional engineer experienced in the design of earth and rock fills has certified that the durable rock fill



design will ensure the stability of the fill and that the fill meets design requirements.

- 512.230** The professional engineer experienced in the design of coal mine waste piles has certified the design of the coal mine waste disposal facility. (See Appendix 5-7)
- 512.240** Prudent engineering practices was used in the design and construction of impoundments in the permit area. The impoundment designs have been certified by a qualified registered professional engineer. (See Plate 7-6)
- 512.250** The professional engineer has certified the design and construction or reconstruction of primary roads as meeting the appropriate design criteria.
- 512.260** The operator is not requesting a variance from the approximate original contours (AOC).

### **513. Compliance With MSHA Regulations and MSHA Approvals.**

- 513.100** Neither Coal processing waste dams or embankments are anticipated during the term of this permit. Therefore, this section is not applicable.
- 513.200** Planned impoundments and sedimentation ponds do not meet the size or other qualifying criteria of MSHA, 30 CFR 77.216(a). Therefore, this section is not applicable.
- 513.300** Underground development waste transported to the surface, coal processing waste and excess spoil will not be disposed of underground. However, material such as overcast material, rock falls, and slope material, not transported to the surface, may be disposed of underground according to the appropriate MSHA regulations.
- 513.400** Refuse piles meet the requirements of MSHA, 30 CFR 77.214 and 30 CFR 77.215 and all appropriate R645 regulations. (See Appendix 5-7)
- 513.500** Shafts, drifts, adits, tunnels, exploratory holes, entryways or other opening to the surface from the underground will be capped, sealed, backfilled or otherwise properly managed

consistent with MSHA, 30 CFR 75.1711.

- 513.600** Surface water discharges into the underground mine workings is not anticipated or planned, Therefore, this section is not applicable.
- 513.700** Surface mining within 500 feet to an active underground mine is not planned nor anticipated. Therefore, this section does not apply.
- 513.800** Coal mine waste fires plans will be submitted to MSHA and the Division for their approval prior to extinguishing any coal mine waste fires. (See Appendix 5-3)

#### **514. Inspections**

All engineering inspections, except the quarterly inspections of impoundments not subject to MSHA, will be conducted by a qualified registered professional engineer or other qualified professional specialist under the direction of the professional engineer.

- 514.100** Lila Canyon is an underground operation and it is not anticipated that any spoil will be produced. Therefore, this section does not apply.
- 514.200** Refuse Piles. A professional engineer or specialist experienced in the construction of similar earth and waste structures will inspect the refuse pile during construction.
  - 514.210** Regular inspections by the engineer or specialist will also be conducted during placement and compaction of coal mine waste materials. If it has been determined that a danger of harm exists to the public health and safety or the environment, more frequent inspections will be conducted. Inspections will continue until the refuse pile has been finally graded and revegetated or until a later time as required by the Division.
  - 514.220** The refuse pile inspections will be performed at least quarterly throughout construction and during the following construction periods:
    - 514.221** In addition to quarterly inspections, an inspection

will be performed during foundation preparation which includes the removal of all organic material and topsoil;

**514.222** Since no under-drain or protective filter systems are planned, this section is not applicable.

**514.223** In addition to quarterly inspections, an inspection will be performed during the installation of the final surface drainage systems.

**514.224** In addition to quarterly inspections, an inspection will be performed after the final grading and the facility has been revegetated.

**514.230** The division will be provided a certified report prepared by, or under the supervision of, the qualified registered professional engineer after each inspection. The report will certify that the refuse pile has been constructed and maintained as designed and in accordance with the approved plan and R645 Rules. This report will include statements stating the appearances of instability, structural weakness, and other hazardous conditions if found. (See Appendix 5-1)

**514.240** Since protective filters and under-drain are not required in the current design criteria this section is not applicable.

**514.250** Required refuse pile reports will be retained at or near the mine site in an area convenient to the resident agent and the qualified registered professional engineer. Appendix 5-1 is an example of the refuse pile inspection form.

**514.300** Impoundments

**514.310** A professional engineer or specialist experienced in the construction of impoundments will inspect impoundments.

- 514.311** During construction inspections will be made on a regular basis and upon completion of the pond the inspections will be performed at least yearly. Inspections will continue yearly until the pond is removed or the performance bond is released.
- 514.312** After each inspection the qualified registered professional engineer will promptly provide to the Division, a certified report. This report will state that the impoundment has or has not been constructed and maintained as designed and in accordance with the approved plan and the R645 Rules. The report will include a discussion of any appearances of instability, structural weakness or other hazardous conditions. All so included in the report will be the depth and elevation of any impounded waters, existing storage capacity, any existing or required monitoring procedures and instrumentation and any other aspects of the structure affecting stability.
- 514.313** Required impoundment inspection reports will be retained at or near the mine site in an area convenient to the resident agent and the qualified registered professional engineer. Appendix 5-2 is an example of the impoundment inspection form.
- 514.320** Since the pond contained in the Lila Canyon Project is less than 20 feet high and stores less than 20 acre-feet of water it is not subject to MSHA, 30 CFR 77.216. Therefore, this section does not apply.

## **515. Reporting and Emergency Procedures.**

- 515.100** If a slide occurs, the operator will telephone DOGM to notify them of the situation and recommend remedial measures to be taken to alleviate the problem. Additional remedial measures required by DOGM will be implemented.
- 515.200** During impoundment inspections any potential hazards noted will be reported to DOGM along with measures to be

implemented to eliminate the hazard.

**515.300** In the case of temporary cessation of operations the following will apply:

**515.310** All provisions of the approved permit will be complied with during temporary cessation or abandonment.

**515.311** In case of temporary cessation the operator will support and maintain all surface access openings to underground operations, and secure surface facilities in areas in which there are no current operations, but operations are to be resumed under an approved permit.

**515.312** Since Lila Canyon Mine is an underground operation this section does not apply.

**515.320** Prior to a temporary cessation of coal mining and reclamation operations which is expected to last longer than 30 days, or when a temporary cessation is extended longer than 30 days, the operator will submit to the Division a notice of intention to cease or abandon operations. The following will be included in the notice of temporary cessation.

**515.321** The temporary cessation notice will contain the exact number of surface acres and the horizontal and vertical extent of subsurface strata included in the permit area. In addition a description of the reclamation activities accomplished and activities such as backfilling regrading, revegetation, environmental monitoring, underground opening closures and water treatment activities that will continue during the temporary cessation.

**515.322** Since the Lila Canyon Mine is an underground operation this section does not apply.

**516. Prevention of Slides:** Since the Lila Canyon Mine is an underground operation this section does not apply.

**520. Operation Plan.**

At first glance it would appear to a non-mining person that the best access to UEI's leases would be from the existing (sealed) Horse Canyon portals using the current Horse Canyon surface disturbance. However, the existing Horse Canyon site is not suitable for a large longwall operation. The old Horse Canyon Mine was not designed to produce 4.5 million tons as will be Lila. Some strategic pillars in the old mains were extracted upon retreat preventing any future access. The number of entries in the old works are not adequate for ventilation purposes. Portions of the old mine are flooded preventing reentry. The distance from the old portals to the current leases would result in unacceptable travel times for crews and supplies. Rehabilitating and maintaining an old mine is extremely hazardous and expensive. As a result of the conditions described above it has been determined that new portals at the Lila Canyon site is the most logical and only feasible access to the permittee's coal leases.

**Mine Facilities List  
Lila Canyon Mine**

A list of new structures and facilities follows:

**Buildings**

- 1) Office/Bathhouse
- 2) Shop Warehouse
- 3) Security Shack

**Utilities**

- 4) Mine Substation
- 5) Under Ground Power Lines
- 6) Water Treatment Plant
- 7) Potable Water Tank
- 8) Process Water tank
- 9) Sewer Tank
- 10) Drain Field

**Mine Facilities**

- 11) Ventilation Fan
- 12) 60-inch Conveyor from tunnels to Coal Stockpile

- 13) (ROM) Underground Belt from Stockpile to Crusher
- 14) 48-inch Conveyor from Crusher to Loadout Bin
- 15) Drop from Loadout Bin to Truck Loadout
- 16) Reclaim Tunnel, Escape Tunnel, Fan and Fan House
- 17) ROM Storage Pile, Coal Stacking Tube
- 18) Crusher Screen Plant
- 19) Truck Scale and Loadout
- 20) Coal Loadout Storage Bin
- 21) Guardrails
- 22) Underground Pipes
- 23) Chain Link Fence

#### **Support Facilities**

- 24) Non-Coal Waste Area
- 25) Equipment & Supplies Storage Area
- 26) Topsoil Pile
- 27) Refuse Pile
- 28) Sediment Pond
- 29) Slope Access Road / Portal Access Road
- 30) Rock Slopes
- 31) Mine Facilities Road / Truck Loadout Road
- 32) Office/Bathhouse/Warehouse Asphalt Parking Area
- 33) Mine Parking
- 34) Fuel Tanks
- 35) Powder and Cap Magazines
- 36) Culvert locations are shown on Plate 7-2.

A description of new structures and facilities:

#### **Office/Bathhouse**

The office and bathhouse building is shown on Plate 5-2. This building will jointly house all support personnel such as accounting, administration, engineering, and safety and will provide a comfortable office environment for all employees. Bathhouse and toilet facilities will be found for all employees at this location. The bathhouse will provide a location for underground miners to change from clean street clothes to clothing suitable for underground use. The area will provide showers for employees for use after their scheduled work shifts so they can cleanup prior to returning home. Both the bathhouse and office buildings will be of prefabricated construction and will rest on a concrete pad. The pad dimensions will be approximately 150' by 100' by 12". The facility will be designed to accommodate up to 200

employees working rotating shifts.

### **Shop Warehouse**

The shop warehouse building is shown on plate 5-2. Parts and supplies consumed during the mining process will be stored in the warehouse to be issued as needed. The shop area will be used to perform minor equipment repairs and overhauls. The shop warehouse will be a prefab modular type building approximately 100' by 150' and will rest on a 4" concrete pad.

### **Security Shack**

The Security Shack shown of Plate 5-2, when used will provide security to the mine site. The security shack will be used primarily at times when the mine is not in production. Security may be provided to protect the public from hazards associated with a mine site and to protect company property from unauthorized use. The security shack will be approximately 10' by 20' by 8" and will be of prefab construction and will rest on a 4" concrete slab.

### **Mine Substation**

The mine substation will be located as shown on Plate 5-2 will provide power to surface and underground areas of the mine property. The substation will comprise of approximately four transformers setting on a concrete pad approximately 20' by 20' by 12" and fully fenced. The total area of the substation is approximately 40' by 40'. Power will be fed into the transformers at 46 KVA and will be transformed down to usage voltages for both the surface and underground facilities. It is anticipated that voltages of 110, 220, 440 will be used on the surface and 12,470 volts will be utilized underground. The mine substation will be constructed in a way to fulfill all appropriate MSHA regulations.

### **Underground Power Lines**

Within the disturbed area it is anticipated all power lines will be underground. Underground lines will be run where feasible. As builds will be provided. Underground Power Lines will be left in place upon reclamation.

### **Water Treatment Plant**

The water treatment plant is located on the north-east side of the



surface facility area. The plant will rest on a 15' by 15' slab. Process water will flow through the treatment plant at which time it will be treated and made suitable for potable water uses. The potable water will be stored in the potable water tank until it is used. The location of the water treatment plant can be found on Plate 5-2.

#### **Potable Water Tank**

Water treated by the water treatment plant and intended to be used as potable water will be stored in this 15' diameter by 20' high tank. The tank will set on a 15' by 15' concrete pad designed for adequate support of the tank. The location of the potable water tank can be found on Plate 5-2.

#### **Process Water Tank**

Process water, water to be used for mine use or to be treated for potable use, will be stored in this tank. The 15' diameter by 20' high process water tank will rest on a 15' by 15' concrete pad. Process water tank will be filled by using mine discharge water or may be hauled in from off site. The location of the process water tank can be found on Plate 5-2.

#### **Sewer Tank**

The sewer tank has been designed to facilitate 200 employees working on rotating shifts. The sewer tank will be located under the south end of the office and bathhouse parking area. The location of the sewer tank can be found on Plate 5-2. The design for the Sewer Tank can be found in Appendix 5-4.

#### **Drain Field**

The drain field has been designed to facilitate 200 employees working on rotating shifts. The drain field will be located at a lower elevation and south of the sewer tank. The location of the drain field can be found on Plate 5-2. The design for the drain field can be found in Appendix 5-4.

#### **Ventilation Fan**

The ventilation fan will be accessed and installed from underground. The ventilation portal will be driven from underground and broken from inside out. The location of the portal and fan is shown on Plate 5-2. Fan power will be run underground. Fan access for maintenance and monitoring will be from the underground works. The need for surface fan access is not anticipated at this time, access will be from underground.

**60-inch Conveyor from tunnels to Coal Stockpile(Main Conveyor)**

The Run of Mine underground belt will provide for a means for coal to be conveyed from the working faces to the run of mine coal storage pile on the surface. The belt will provide capacity to convey to the surface, all coal mined in the underground workings. Preliminary design suggests that the conveyor that extends from the bottom of the rock slopes to the stacking tube at the coal storage area, shown on Plates 5-2 and 5-8, will have the following specifications: 60" wide, speed approximately 700 fpm with a length of approximately 810 feet long. Since the ground beneath the conveyor will not be disturbed due to the steepness and remoteness of the area, this conveyor will be completely contained within a tube type structure.

**(ROM) Underground Belt from Stockpile to Crusher/ Screen**

The Reclaim conveyor will provide for a means for coal to be conveyed from the coal stockpile to the crusher. The belt will provide capacity to convey to the screen and crusher at a suitable rate for crushing and screening. Preliminary design suggests that the reclaim conveyor, shown on Plates 5-2 and 5-8, will have the following specifications: 60" wide, speed approximately 700 fpm with a length of approximately 670 feet long. The portions of the conveyor running on the surface will be covered.

**60-inch Conveyor from Crusher to Loadout Bin**

\_\_\_\_\_The Loadout conveyor will provide for a means for coal to be conveyed from the crusher to the loadout bin. The belt will provide capacity to convey to the loadout at the same rate as the Reclaim conveyor. Preliminary design suggests that the Loadout conveyor, shown on Plates 5-2 and 5-8, will have the following specifications: 60" wide, speed approximately 500 fpm with a length of approximately 230 feet long. The portions of the conveyor running on the surface will be covered.

**Drop from Loadout Bin to Truck Loadout**

Coal will be dropped from the loadout bin to the trucks being loaded. The drop rate will provide capacity to the trucks at a rate suitable for truck loading.

**Reclaim Tunnel, Escape Tunnel, Fans**

Design for the escape and reclaim tunnels is not complete. Standard practice is to construct the tunnels from either concrete or corrugated metal. The reclaim tunnel is approximately 350' long with a 14' diameter. The escape tunnel will be approximately 300' long with a diameter of 4'. Appropriate safety and environmental concerns will be addressed upon detailed design. The preliminary layout is shown on Plates 5-2 and 5-8.

**ROM Storage Pile**

The run of mine storage pile receives coal directly from the underground works and provides storage for the coal until it is crushed and loaded into trucks for transportation to a unit train loadout. The coal from the underground run of mine belt will be dropped into a stacking tube located in the center of the run of mine storage pile. This tube will help reduce any fugitive dust. The stacking tube will be approximately 80' high and will allow for approximately 200,000 tons of open storage in the run of mine storage pile. The run of mine storage pile is shown on Plates 5-2 and 5-8.

**Crusher**

The enclosed crusher will crush coal from the 8" minus down to a 2" minus size, at the rate of approximately 1000 tons per hour. The coal will be first screened then the oversized will be crushed. Crushed coal will be stored temporarily in a 500 ton storage bin located above the truck loadout. The crusher and screen locations are shown in Plates 5-2 and 5-8.

**Truck Scale and Loadout**

Coal will be reclaimed from the coal storage bin, weighed and then loaded into coal haul trucks for transportation to the various unit train loadouts. A small loadout shack will be constructed to provide cover and protection for the various equipment and controls need for the coal loading process. The truck scale and loadout are shown on Plates 5-2 and 5-8.

### Coal Storage Bin

The coal storage bin is part of the truck loadout and is shown on Plate 5-2. The coal storage bin is where crushed coal is stored waiting to be loaded into coal haul trucks. The bin provides for surge capacity and allows for better control of crushing time. The coal storage bin provides for an enclosed dry location for temporary crushed coal storage. Coal is delivered from the crusher to the coal storage bin by use of a 60" covered surface conveyor running at a speed of approximately 700 FPM. The preliminary layout is shown on Plates 5-2 and 5-8.

### Coal Stacking Tube.

The final design for the coal stacking tube is not yet complete. Preliminary design indicates that the stacking tube will be approximately 15' Diameter and approximately 80 feet high. Standard practice is to construct the tube of either concrete or steel. The preliminary layout is shown on Plates 5-2 and 5-8.

### Culverts

A complete list and design for the culverts can be found in Appendix 7-4 Tables 9 and 10, and are shown on Plate 7-2. A summary of the culverts follows:

<u>Culvert</u>	<u>Length</u>	<u>Size</u>
DC-1	30'	18"
DC-2	65'	18"
DC-3	33'	18"
DC-4	135'	18"
DC-5	50'	18"
DC-6	80'	24"
DC-7	110'	18"
DC-8	85'	24"
DC-9	35'	18"
DC-10	55'	18"
DC-11	65'	18"
DC-12	50'	18"
DC-13	30'	24"
DC-14	60'	18"
DC-15	60'	18"
DC-16	60'	18"

DC-17	75'	18"
DC-18	35'	18"
DC-19	40'	18"
UC-1	480'	60"

### **Guard Rails**

Approximately 1,520 feet of Guard rails will be installed on the mine access road according to the detailed engineering plan being prepared. Appropriate MSHA and UDOT requirements will be taken into consideration.

### **Underground Pipes**

Locations of the underground pipes have yet to be determined. Once detailed engineering design is completed the underground pipes will be added to Plate 5-2 or other appropriate Plates. Under ground pipes will be left in place upon reclamation.

### **Chain Link Fence**

Approximately 1,500' of a six foot high chain link fence will be constructed as shown on Plate 5-2. The fence will be constructed to protect the public, and provide security along the section of county road that runs adjacent to the property.

### **Non-Coal Waste Area**

An area for non-coal waste has been identified on Plate 5-2. Non-coal waste such as papers, timbers, cans, and miscellaneous scrap that is brought to the surface will be disposed of in a metal bin or "dumpster" located in the non-coal waste area identified on Plate 5-2. Metal will be separated from other forms of trash for salvage. Material not salvageable will be transported to the East Carbon Development Corporation (ECDC) dump or other approved disposal site for permanent disposal. Once a dumpster has reached capacity, the full dumpster will be replaced with an empty dumpster, and then the full dumpster will be hauled by a contract hauler to the specified disposal site.

### **Equipment & Supplies Storage Area**

The equipment and supply storage area is approximately 350' by 400'. This storage area will be used to store mine supplies and equipment from the time of delivery until they are needed underground. Supplies such as timbers, bolts, plates, rock-dust, pipes, resin, screens, concrete blocks, steel, cables, and numerous other materials may be stored in this area. Equipment both new and used will be stored in this area. Many various longwall pieces such as shields, pan-lines, shears, chains, head and or tail drives, transformers, belt drives, pumps and numerous other material will be stored in this storage area. This secure area provides for a good storage area for diesel, gasoline, hydraulic, and roadway chemicals. All oil tanks will have appropriately designed berms or retaining walls. The equipment and supplies storage area is shown on Plate 5-2. Any explosives will be stored here according to appropriate MSHA regulations. Rock dust bins will be located in this area.

#### **Topsoil Pile**

The topsoil pile has been located on the south west end of the surface facilities. The pile has been designed to contain adequate topsoil for redistribution according to the reclamation plan found in Chapter 5. The proposed location provides for good protection from wind contamination as well as protection from mine related activities. The location of the topsoil pile is shown on Plate 5-2.

#### **Refuse Pile**

A temporary refuse pile has been designed to provide a location for the storage of underground development waste that is brought to the surface. Any underground development waste, other than rock slope material, will be placed in the temporary refuse pile then transported to an approved disposal site. The rock slope material will be used as fill as per Appendix 5-7. The capacity of the temporary pile will only be a few hundred tons. The area for the rock slope material is shown on Plate 5-2.

#### **Sediment Pond**

The sediment pond has been design to provide for adequate sediment protection for the project area. All water running off the disturbed area will be routed into the sediment pond for treatment. The sediment pond has been designed according to the appropriate R645 regulations and the designs can

be found in Appendix 7-4 and Plate 7-6. Because the sediment pond does not fit into the requirement of 30 CFR 77.216(a) an MSHA number for the proposed pond is not required. The sediment pond is located on the southwest end of the property and shown on Plate 5-2.

### **Slope Access / Portal Access Road**

The slope access road splits off the facility access road near the northeast corner of the equipment and supply storage area, and follows an alignment that takes into consideration grade and direct access. The slope access road will be used to provide access to the rock slopes which in-turn provided access to the underground workings. The slope access road will be used as access for all men, material and equipment need in the mine. Since the slope access road provides for frequent access for men, equipment and materials for a period of six months or longer the slope access road is classified as a primary road and will be paved. The slope access road will be designed, constructed, and maintained according to appropriate R645 regulations. The slope access road is shown on Plate 5-2.

### **Rock Slopes**

Access to the underground workings of the Lila Canyon Mine will be provide by two rock slopes driven from the top of the Mancos shale up-dip to the intersection of the coal seam. One portal will proved for access for men, equipment and material to the mine. The second access slope will contain the run of mine belt line from the underground workings of the mine to the run of mine stock pile. There is a possibility that only one larger slope will be driven and then divided. to provide for two separate entries. The two 1,227 foot long slopes will slope up at approximately 12%, from a starting elevation of approximately 6150'. The intersection of the coal seam and the rock slope will take place at approximately 6,300 feet elevation. The length of the slopes were minimized by taking advantage of the coal seam dip which is approximately 12% to the east. The rock material removed from the slopes will be used as fill material for the surface facilities. The rock slope material / underground development waste will contain mostly shale, sandstone and mudstone. Traces of coal may be found but the amount will be insignificant. There are no known coal seams or significant rider seams found below the Sunnyside Seam in the Lila Canyon Portal Area. The rock slope locations are shown on Plate 5-2.

### **Mine Facilities Road / Truck Loadout Road**

The mine facility road shown on Plate 5-2 begins at the edge of County Road 164 and allows for access to the various surface facilities. The road has been located in the most practical location taking into consideration grade, stability, and alignment. Employees will use this road to access the office & bathhouse facilities. Coal haul trucks will use this road to access the scales and truck loadout. All supplies will be hauled on a short portion of this road from the supply storage area to the slope access road. The road will be paved during construction of the facilities and before coal mining operations begin in order to minimize dust and provide good surface for heavy truck traffic as well as facility access. The facility access road will be approximately 24' wide to provide for two lane traffic and will have the appropriate drainage controls to insure long term life and low maintenance. The road has been constructed and will be maintained according to the appropriate R645-534 and R645-527 regulations.

#### **Office/Bathhouse/Visitor Parking Area**

Parking will be as shown on Plate 5-2. Parking facilities for office, mine, and warehouse employees will be provided jointly as shown. This area will also provide parking for all vendors, and visitors. The surface of the 220' by 350' area will be paved. The parking area is located and designed to allow for convenient and safe parking of personal vehicles. The sewer tank and drain field will be located on the north end of this parking area.

#### **Mine Parking**

A mine parking area will be provided as shown on Plate 5-2. The mine parking area is where all mine and mine related mobile equipment will be parked when on the surface. This is the location where the underground work crews will be loaded into man trips for transportation to the various work areas. The mine parking area will be paved. The mine parking area will be approximately 70' by 220'.

#### **Fuel Tanks**

Fuel tanks will be located in the Equipment & Supplies Storage Area and be installed as discussed under Equipment & Supplies Storage Area. A 1,500 gallon diesel tank, 500 gallon hydraulic tank and a 500 gallon gasoline tank will be needed.

#### **Powder and Cap Magazines**



Powder and cap magazines will be mobile temporary, and supplied by the explosive distributor. Upon reclamation the powder and cap magazines will be returned to the distributor.

As per the approved Air Quality Order all roads will be paved and the pad areas used by mobile equipment will be treated with water or dust suppressant, open stockpiles will be watered as conditions warrant.

- 521.** Included in this section are maps, cross sections, narratives, descriptions and calculations used to satisfy the relevant requirements. This section describes and identifies the lands subject to coal mining and reclamation operations covering the estimated life of the project.

**521.100** This application includes the cross sections, maps and plans needed to present the relevant information required by the Division. This information includes the following:

**521.110.** Plate 5-1 Shows area previously mined and approximate dates of mining.

**521.111** Plate 5-1 of part "B" and 2-2 of part "A" shows the location and extent of known workings of inactive, or abandoned underground mines. The surface portals or mine openings to the surface are shown. Plates 5-1 and 2-2 of part "A" have been prepared and certified by or under the direction of a registered professional engineer.

Doelling lists several coal mines and mining activity in within or adjacent to the permit area. Doelling lists the Calkins prospect, the Lila Canyon prospect, and the Prentiss prospect. In addition Doelling lists several coal mines Prentiss, Utah Blue Diamond, Blue Diamond and Heiner Mines. The research has shown that the Prentiss, Utah Blue Diamond, Blue Diamond and Heiner Mines were engulfed by the Book Cliffs mine. The Lila Canyon prospect refers to the old Lila Canyon mine fan portals used to ventilate the Geneva (Horse Canyon mine. The Calkins prospect is believed to have been engulfed by the Geneva mine.

An outcrop fire has been detected in an area north of the exiting permit area "A". The fire is off the permit area and located in an area that has been sealed from the old horse canyon works. The outcrop fire is not anticipated to cause any problems with mining at the Lila Canyon Mine.

**521.112** No surface mined areas are found within the permit area. Therefore, this section does not apply.

**521.120** Three existing structures, a 48" and a 60" CMP culvert located near the new proposed sediment pond, and the Little Park Road can be found at the Lila Canyon Mine. The existing culverts are shown on plate 5-1A and the road on Plate 5-1. Existing Horse Canyon facilities are discussed in part "A" of this plan.

**521.121** There are no buildings within 1000 feet of the proposed permit area for the Lila Canyon Mine, Part "B".

**521.122** There are no subsurface man-made features, other than the culverts discussed in 521.200, within, passing through, or passing over the proposed permit area for Part "B".

**521.123** Plate 4-1, as well as others, shows the existing county road 126 which is located partly within 100 feet of the proposed permit area. In Addition, the Little Park road is located above the surface facilities within the permit area. The Little Park road is also shown on plate 4-1

**521.124** There are no known existing areas of spoil, waste, coal development waste, or non-coal waste disposal, dams, embankments, other impoundments, and water treatment and air pollution control facilities within part "B" of the proposed permit area. This section is not Applicable.

**521.125** There are no existing sedimentation ponds, permanent water impoundment, coal processing

waste banks or coal processing waste dams near or within the permit area.

- 521.130** Landowner and right of entry maps are included in the permit application. These maps and cross sections show the following:
- 521.131** Plate 4-1 shows the surface ownership and Plate 5-4 shows the coal ownership of land included in or contiguous to the permit area.
- 521.132** The applicant has the legal right to enter and begin coal mining and reclamation operations on all areas shown within the permit area. The permit area is shown on Plates 5-3 and 5-4 as well as others.
- 521.133** Coal mining or reclamation operations are planned within 100 feet of a public road. There are no plans to relocate public roads.

  - 521.133.1** Emery County has given permission to conduct coal mining or reclamation operations within 100 feet of the county road. (See Appendix 1-4)
  - 521.133.2** The current permit does not propose any relocation of public roads. Therefore, this section is not applicable.
- 521.140** Mine maps and permit area maps and or cross-sections will clearly indicate the following:

  - 521.141** Plate 5-1 shows the permit boundary and Plate 5-2 shows the disturbed area boundary. Additional subareas that might require additional permits are addressed in Section 112.800 and 4-1B.
  - 521.142** The underground workings are shown on Plate 5-5.
  - 521.143** The proposed disposal site for placing the slope rock is shown on Plate 5-2 as well as other appropriate plates.

- 521.150**      Plates 6-2, 6-3, and 6-4, show surface contours that represent the existing land surface configuration of the proposed permit area.
- 521.151**      The Plates show the surface contours for all areas to be disturbed as well as over the total permit area. The Plates showing the surface contours has been prepared by or under the supervision of a registered engineer.
- 521.152**      No previously mined areas are included within Part "B". Therefore this section does not apply.
- 521.160**      The maps, plates, and cross sections associated with this chapter clearly show:
- 521.161**      Proposed buildings, utility corridors, and facilities are shown on Plate 5-2 as well as others.
- 521.162**      Area of land affected according to the sequence of mining and reclamation is shown on the appropriate plates.
- 521.163**      Land for which a performance bond will be posted is shown on the appropriate plate. Plate 5-2 as well as others show the area for which the performance bond will be posted. All disturbed areas within the permit boundary has been bonded.
- 521.164**      Coal storage and loading areas are shown on Plate 5-2 and certified as required. Additional information can be found in Appendix 5-4.
- 521.165**      Topsoil, and waste piles are shown on Plate 5-2 as well as others.
- 521.166**      The waste disposal areas are shown for non-coal waste and underground mine waste on Plate 5-2.
- 521.167**      No explosives are expected to be stored on site. However, if explosives are stored they will be stored as discussed in Section 520. on Plate 5-2.

- 521.168** Since Lila Canyon mine is an underground operation this paragraph is not applicable.
- 521.169** The refuse pile is shown on Plate 5-2 and discussed in Appendix 5-7.
- 521.170** Transportation facility maps describing roads, and conveyor maintained within the permit is shown with descriptions of roads, embankments, culverts, and drainage structures are presented in section 520 and are shown on Plates 5-2, and 7-2.
- 521.180** Support facilities are described in section 520 and are shown on Plate 5-2. Plate 5-2 is the official disturbed area boundary map.
- 521.190** Other relevant information required by the Division will be addressed.
- 521.200** Signs and markers will:
- 521.210** Signs and markers will be posted maintained, and removed by the person who conducts the coal mining and reclamation operations.
- 521.220** Signs and markers will be of uniform design that can be easily seen and read and be made of durable material and conform to local laws and regulations.
- 521.230** Signs and marker will be maintained during all activities to which they pertain.
- 521.240** Mine and Permit Identification Signs.
- 521.241** Mine and permit identification signs will be displayed at each point of access from public roads to areas of surface operations and facilities on permit areas.
- 521.242** Since Lila Canyon Mine is an underground operation, this section is not applicable.
- 521.243** Mine and permit identification signs where required, will show the name, business address,

and telephone number of the permittee and the identification number of the permanent program permit authorizing coal mining and reclamation operations.

**521.244** Mine and permit identification signs will be retained and maintained until after the release of all bonds for the permit area.

**521.250** Perimeter Markers

**521.251** The perimeter of all areas affected by surface operations or facilities before beginning mining activities will be clearly marked with perimeter markers.

**521.252** Since Lila Canyon Mine is an underground operation this section is not applicable.

**521.260** Buffer Zone Markers

**521.261** Signs will be erected to mark buffer zones as required and will be clearly marked to prevent disturbance by surface operations and facilities.

**521.262** Since Lila Canyon Mine is an underground operation this section is not applicable.

**521.270** Topsoil Markers. Markers will be erected to mark where topsoil or other vegetation-supporting material is physically segregated and stockpiled.

**522. Coal Recovery**

Additional Details can be found in the R2P2 on file at the BLM Office.

Effective barrier and pillar designs are essential for safe and productive underground mining. Barrier pillars will be sized according to accepted engineering practices. One or more of the following methods may be used to properly size barrier pillars: Dunn's Rule, the Old English Barrier Pillar Law, Pennsylvania Mine Inspector's Formula, Ash and Eaton Impoundment Formula, Pressure Arch Method, British Coal Rule of Thumb, North American Method, Holland Rule of Thumb, or Holland Convergent Method.

Regardless of the methods or care taken to properly size barrier pillars the true effectiveness on any design can only be determined by conducting full-scale in-mine performance evaluations. Mine experience and history in the local area will have as much influence on pillar sizes as does the engineering formulas.

Barrier pillars will be utilized to isolate the abandoned Horse Canyon Mine from the new Lila Canyon Mine. Barrier pillars will also be used to simplify ventilation, to provide independent escape routes and to possibly retain large quantities of mine water. Barrier pillars will be employed along the outcrop in order to maintain ventilation courses.

A barrier pillar where no second mining will be allowed within the barrier will be used to protect the escarpments. The width of the escarpment barrier will be determined by implementing a 21.5° angle of draw project downward from the surface to the coal seam. Development mining or first mining will be allowed within the escarpment barrier.

For longwall mining applications the abutment loading is of prime importance. Initial longwall pillars will be designed using the ALPS method. Again mine experience and history in the local area will have as much influence on pillar sizes as does the engineering formulas.

Mine pillars will be sized taking into consideration the coal strength, depth of cover, width and height of pillars using one or more of the following methodologies: Obert-Duvall, Holand-Graddy, Holland, Salamon-Munro, or Bieniawski. Again mine experience and history in the local area will have as much influence on pillar sizes as does the engineering formulas.

### **523. Mining Methods:**

Mining will begin in Section 15, T16S, R14E, in the Sunnyside seam. Development of the Sunnyside seam will be in a down dip direction toward the east. The seam will be accessed by two 1,200 foot slopes driven up at 12% from the base of the cliffs.

Production during the first year is estimated to be 200,000 tons, the second through the fifth year production should be between 1,000,000 and 1,500,000 using continuous mining methods. If and when tonnage demand increases to justify longwall mining, production could peak as high as 4,500,000 tons a year and continue at that level for the life of the mine.

Mine production will begin with the slope construction. Once the coal is encountered development will continue using continuous miners and various haulage types. Battery, cable, or continuous haulage may be used in conjunction with continuous miners in development. Continuous miners will account for all the production during the first two to five years. Mining will consist of driving mains, developing room and pillar panels and gate entries for future longwall mining.

The majority of the second mining will be performed using longwall equipment. However, in isolated areas room and pillar type of mining may be used in areas not suitable for longwall mining. Longwall panels are sited approximately parallel lengthwise to the strike with a slight up dip orientation to provide drainage for the development faces. This practice will be applied to the continuous miner panels wherever possible. (See plate 5-5)

Roof control and ventilation plans will be submitted to MSHA and approved prior to any underground mining activities.

An air quality permit from the State Division of Air Quality has been obtained and will be modified as needed.

Ventilation of the mine will be by an exhaust and or blowing type system. It has been estimated that 900,000 cfm will be required at full production. Intake air will be supplied by slopes and entries from the surface.

A water supply system will be installed. Potable water from an approved source will be hauled by truck and stored in a mine site storage tank located near the man and coal slope portals. Alternative sources for potable water are being considered. A treatment plant may be indicated. Process water will be hauled from the Price River or other approved source by truck and stored in another mine site storage tank. It is anticipated that once the old two entry development panel is encountered that adequate process water may be obtained from the old works. This process water will provide for dust control, water to the mine and fire suppression. Mine water will be used with the process water. See Appendix 7-3 (PHC) for water usage calculations.

Dust suppression will be accomplished by the use of sprays on all underground equipment as required. Sprays will also be used along sections of the conveyors and at transfer points.

No major de-watering concerns are anticipated at this property. The workings are expected to produce some water with more water being produced as the



depth of mining increases. Part of this water will be used for dust suppression. The remainder will be collected in sumps and pumped to mined out sections of the mine or to the surface and treated when necessary.

Underground mining equipment to be used at Lila Canyon is typical of most room-and-pillar and longwall mine. A list of major equipment which may be used underground is listed below additional equipment not on the list may be used as needed.

- Continuous Miners
- Roof Bolters
- Battery Shuttle Cars
- Electric Shuttle Cars
- Diesel Ram Cars
- Feeder Breakers
- Continuous Haulage Units
- Battery Scoops
- Diesel Scoops
- Diesel Service Vehicles
- Diesel Material Haulers
- Diesel
- Belts and Terminal Groups
- Battery and Diesel Man Trips
- Longwall Shields
- Longwall Pan-lines
- Longwall Shears
- Longwall Stage-loaders
- Longwall Pumps
- Various Water Pumps
- Various Transformers and Switches
- Rock Drills
- Loaders

**523.100** No Surface Coal Mining and Reclamation Activities are proposed to be conducted within the permit area within 500 feet of an underground mine, therefore this section is not applicable.

**523.200** No Surface Coal Mining and Reclamation Activities are proposed with 500 feet of an underground mine, therefore this section is not applicable.

**523.210** No Surface Coal Mining and Reclamation Activities are

proposed to be conducted within the permit area within 500 feet of an underground mine, therefore this section is not applicable.

**523.220** No Surface Coal Mining and Reclamation Activities are proposed to be conducted within the permit area within 500 feet of an underground mine, therefore this section is not applicable.

**524. Blasting and Explosives:** Surface blasting activities incident to underground coal mining is planned for the Lila Canyon mine during construction of the access slopes only.

**524.100** Steps have been taken to achieve compliance with the blaster certification program and is described in this permit application.

**524.110** Surface blasting involving 5 lbs of explosives or more will be conducted under the direction of a certified blaster.

**524.120** Blasting certificates will be carried by the blasters or will be on file at the permit area during blasting operations.

**524.130** The blaster and at least one other person will be present at the firing of a blast.

**524.140** Persons responsible for blasting operations at a blasting site will be familiar with the blasting plan, if required, and site-specific performance standards and give on-the-job training to persons who are not certified and who are assigned to the blasting crew or assist in the use of explosives.

**524.200** Since the planned blasting does not meet the requirements of 524.211 or 524.212 a blast design is not included in the permit application. If in the future blasting falls under section 524.200 then a plan will be submitted to Division for approval.

**524.210** Since the planned blasting does not meet the requirements of 524.211 or 524.212 anticipated blast designs are not required.

**524.300** Since planned blasting requires more than 5 lbs of explosives the preblasting survey is addressed where applicable in this

permit application.

- 524.310** There are no dwellings or other structures located within one-half mile of the permit area owned by anyone but the operator. The operator will prepare the preblast survey if required. Notification procedures implied in this section are not applicable.
- 524.320** Since the operator is the only owner of structures and no dwelling exist within one-half mile of any part of the permit area this section is not applicable.
- 524.330** Because the operator is the only owner of structures or dwellings within one-half mile of any part of the permit area, this section is not applicable.
- 524.340** Because the operator is the only owner of structures or dwellings within one-half mile of any part of the permit area, this section is not applicable.
- 524.350** Because the operator is the only owner of structures or dwellings within one-half mile of any part of the permit area, this section is not applicable.
- 524.400** The blast schedule is as follows:
- 524.410** Since there are no residents within one-half mile of the projected blasting site this section does not apply.
- 524.420** All surface blasting will be conducted between sunrise and sunset unless nighttime blasting is approved by the Division.
- 524.430** Since there are no residents within one-half mile of the projected blasting site this section does not apply.
- 524.440** Since there are no residents within one-half mile of the projected blasting site a flexible blasting schedule is allowable. Surface blasting may take place anytime during daylight hours, unless approved differently by the Division.
- 524.450** Because of the remote location of the Lila Canyon Mine,

over six miles from the nearest locality (Columbia), this section does not apply.

**524.460** Since the town of Columbia is the nearest locality, and is over six miles distance from the permit area, this section does not apply.

**524.500** The blasting signs, warnings and access control is described below.

**524.510** Blasting signs will meet the specifications of R645-301-521.200. The following will apply.

**524.511** Signs reading "Blasting Area" will be conspicuously place at the point where any road provides access to the blasting area.

**524.512** The signs posted at all entrances to the permit area from public, roads, or highways will be placed in a conspicuous location and will state "Warning! Explosives in Use" and will clearly list and describe the meaning of the audible blast warning and all clear signals that are in use.

**524.520** Audible warning and all-clear signals of different character or pattern will be given. Each person within the permit area will be trained in the meaning of the signals.

**524.530** Access within the blasting area will be controlled until an authorized until the operator has reasonably determined the following:

**524.531** No unusual hazards, such as imminent slides or undetonated charges, exist; and

**524.532** Access to and travel within the blasting area can be safely resumed.

**524.600** Adverse blasting effects are described as follows:

- 524.610**      Blasting will be conducted to prevent injury to persons, damage to public or private property outside the permit area, adverse impacts on any underground mine, and change in the course, channel, or availability of surface or ground water outside the permit area.
- 524.620**      Airblast Limits
- 524.621**      Since all structures are either owned by the permittee and not leased to another person or are located over six miles distance from the permit area, this section does not apply.
- 524.622**      Since all structures are either owned by the permittee and not leased to another person or are located over six miles distance from the permit area, this section does not apply.
- 524.630**      Monitoring: Since all structures are either owned by the permittee and not leased to another person or are located over six miles distance from the permit area, this section does not apply.
- 524.640**      Ground Vibration: Since all structures are either owned by the permittee and not leased to another person or are located over six miles distance from the permit area, this section does not apply.
- 524.650**      Since all structures are either owned by the permittee and not leased to another person or are located over six miles distance from the permit area, this section does not apply.
- 524.660**      Since all structures are either owned by the permittee and not leased to another person or are located over six miles distance from the permit area, this section does not apply.
- 524.670**      Since all structures are either owned by the permittee and not leased to another person or are located over six miles distance from the permit area, this section does not apply.
- 524.680**      Since all structures are either owned by the permittee

and not leased to another person or are located over six miles distance from the permit area, this section does not apply.

**524.690** Since all structures are either owned by the permittee and not leased to another person or are located over six miles distance from the permit area, sections 524.620 through 524.632 and 524.640 through 524.680 do not apply.

**524.700** Records of blasting operations will be maintained at the mine site for at least three years and will be available for inspection by the Division or the public. Blasting records will contain the following information.

**524.710** Blasting records will include.

**524.711** The name of the operator will be on the blasting record.

**524.712** The location, date, and time of the blast will be recorded on the blasting record.

**524.713** The name, signature, and certification number of the blaster will be recorded on the blasting record.

**524.720** Since all structures are either owned by the permittee and not leased to another person or are located over six miles distance from the permit area, this section does not apply.

**524.730** Weather conditions will be recorded on the blasting record.

**524.740** A record of the blast will include the following:

**524.741** The type of material blasted will be recorded on the blasting record.

**524.742** Sketches of the blast pattern including number of holes, spacing, burden, decks, and delay pattern will be recorded on the blasting record.

- 524.743** The diameter and depth of holes will be recorded on the blasting record.
- 524.744** The type of explosives used will be recorded on the blasting record.
- 524.745** The total weight of the explosives used per hole will be recorded on the blasting record.
- 524.746** The maximum weight of explosives detonated in an eight-millisecond period will be recorded on the blasting record.
- 524.747** Information on the initiation system will be recorded on the blasting record.
- 524.748** The type and length of the stemming will be recorded on the blasting record.
- 524.749** Mats or other protections used will be recorded on the blasting record.
- 524.750** Since all structures are either owned by the permittee and not leased to another person or are located over six miles distance from the permit area a record of seismographic and airblast information is not required.
- 524.760** Since a blasting schedule is not required this section does not apply.
- 524.800** The operator will comply with the various appropriate State and Federal laws and regulations in the use of explosives.
- 525. Subsidence:** The permittee will comply with the appropriate R645-301-525 requirements.
- 525.100 Subsidence Control Plan**
- 525.110** Plate 5-3 shows the location of State appropriated water and 5-3 (Confidential) shows the eagle nests that potentially could be diminished or interrupted by subsidence.

**525.120 SUBSIDENCE POTENTIAL (See also Section 5.4 of Part "A")**

A review of renewable resources in and adjacent to the permit area found resources consisting of ground water, grazing, timber, and recharge areas. Subsidence from underground coal mines has been believed to affect overlying forest and grazing resource lands in the following ways:

- o Formation of surface fissures which intercept near surface soil moisture thus draining the water away from the root zone with deleterious effects.
- o Alterations in ground slope and destabilization of critical slopes and cliffs.
- o Modification of surface hydrology due to the general downward migration of surface water through vertical fractures.
- o Modification of groundwater hydrology including connection of previously separated aquifers, reduction in flows of seeps and springs which rely upon tight aquitards for their flow, and changes in recharge mechanisms.
- o Emissions of methane originating from the coal seam through open fissures to the surface or at least the base of the surficial soil which has been known to have deleterious effects on woody plants.

Because these renewable resources exist with and adjacent to the permit area, a subsidence control plan is required. This plan is presented in Section 525.400.

A great deal of baseline data is available from many mining settings to develop subsidence damage criteria for surface structures (Bhattacharya et al. 1984). The formation of cracks and fissures are the general effects of subsidence and can have minor deleterious effects on groundwater resources without any fissuring to the surface. In the arid areas of Utah, impacts to and modification of the groundwater regime can be disruption of flow from natural seeps and springs which rely on the permeability contrast of interbedded sandstones and shale for their flows. These water resources are generally near



surface occurrences and are essentially surface waters and subject to the same limiting damage criteria as surface water bodies. Subsidence damage to surface water bodies has been studied by a number of workers including Dunrud (1976), Wardell and Partners (1976), and U.S. Bureau of Mines (1977). The results of the Wardell and Partners studies of subsidence effects in a number of countries indicates that the limiting strain for the onset of minor impacts to surface waters is approximately  $5 \times 10^{-3}$ . The SME Mining Engineering Handbook also suggests a limiting extension strain value of  $5 \times 10^{-3}$  for pasture, woodland, range or wildlife food and cover.

Table 10.6.19 in the Mining Engineers Handbook suggests that the minimum safe cover required for total extraction of the coal resources under surface waters is approximately 60 times the seam thickness for coal beds at least 6 feet thick or approximately 450 feet. In their review of the foregoing, Singh and Bhattacharya (1984) recommended that the same limiting safe strain values and cover thickness ratios be used for protecting groundwater resources and recharge areas over coal mines. Where extension strain is greater than this limiting value, it is likely that surface fissures and cracks may develop. As the strain value decreases below the limiting value, the potential for surface damage decreases.

Figure 1 in Appendix 7-3 shows a typical subsidence profile. As shown in Figure 1, the zones are: a caved zone that occurs in the 6 to 10 times the thickness of the coal seam, a fractured zone which occurs 10 to 30 times the thickness of the coal seam, and deformation zone which occurs 30 to 60 times the thickness of the coal seam, and finally, a soil zone which occurs on the ground surface. The cover thickness of 1,000 to over 2,000 feet, over most of the mine area is also much greater than the limiting thickness of 630 feet recommended by International Engineers Inc. (1979) ( $10.5' \times 60$ ).

The Lila Canyon mine will be a longwall operation. As projected, 15 longwall panels at various depths will be mined. The longwall panels are laid out with the gate roads running along the strike roughly north-south, which will result in the longwall shear cutting up and down the dip. The depth of cover over the longwall panels approaches but never gets less than 500 feet toward the southwest and increases to over 2500 feet

in the northeast. Only three of the 13 planned longwall panels are under less than 1,000 feet of cover. The remaining 10 panels are under 1,000 plus feet of cover. Maximum subsidence is expected to be approximately 9.5 feet in the areas approaching 500 feet of cover and less than 3' in the deeper cover areas. Extension strain varies from  $12.4 \times 10^{-3}$  in the 500 foot cover areas to  $.9 \times 10^{-3}$  in the 2,500 foot cover areas. Extension strain values of  $5.0 \times 10^{-3}$  and above occurs in areas of approximately 1000' of cover and less.

A typical longwall panel at the Lila Canyon Mine will have dimensions of approximately 950 feet wide and up to 7,000 feet long and 2,000 feet deep. Using the methods described in the National Coal Board's *Subsidence Engineers' Handbook*, the S/m ratio for this geometry would be 0.38 where "S" is the maximum subsidence and "m" is the seam extraction thickness. For an average seam extraction thickness of 10.5 feet, the total subsidence would be 4.0 feet. However, as described above, the major impacts of this subsidence are due to extension strains and not total vertical subsidence. The prediction of average extension strain is accomplished with the use of the formula:

$$+E = 0.75 S/h \text{ where } S=\text{subsidence, and } h=\text{depth of cover}$$

**NOTE:** The .75 factor is only an average. The factor changes with various w/h ratios. Figure 15 found in NCB's Subsidence Engineers Handbook takes into account the w/h ratio.

The solution of this equation for the Lila Canyon Mine configuration discussed above produces a predicted, average extension strain of  $1.5 \times 10^{-3}$  which is less than the limiting strain of  $5 \times 10^{-3}$  for protecting surface waters, groundwater sources, pasture, woodland, range or wildlife food and cover. Thus, it is unlikely that the gradual compression expected over much of the subsidence area will have any deleterious effects on the overlying renewable surface resources.

The table below shows the expected subsidence amount and expected extension strain for longwall panels at various mining depths. These calculations were done for a flat multiple seam mining. There are adjustments for single seam mining and for dipping seams. However, these adjustments are minor and are not expected to result in significant changes in values.

**Maximum Subsidence  
& Expected Extensive  
Strain (NCB 1975)**

	Feet	Meters
Panel Width =	900	274
Seam Height =	10.5	3

Depth of Cover		Width to Depth (a)	Maximum Subsidence(S)		Factor NCB Fig. 15	Extension Strain (E)
<u>Feet</u>	<u>Meters</u>		<u>Feet</u>	<u>Meters</u>	<u>Factor</u>	<u>x 10<sup>-3</sup></u>
500	152	0.9	9.5	2.9	.65	12.4
1000	305	0.75	7.9	2.4	.66	5.2
1100	335	0.71	7.5	2.3	.68	4.6
1200	366	0.68	7.1	2.2	.70	4.1
1300	396	0.65	6.8	2.1	.70	3.7
1400	427	0.59	6.2	1.9	.75	3.3
1500	457	0.54	5.7	1.7	.78	3.0
2000	610	0.38	4.0	1.2	.82	1.6
2500	762	0.28	2.9	0.9	.80	0.9

The most favored technique until recently has been the use of the empirical charts developed by the National Coal Board (NCB). The above calculations were obtained using the empirical charts developed by the National Coal Board (NCB). Comparisons, as stated in the SME handbook, of US subsidence data with NCB predictions highlight the following differences between coalfields in the US and UK: Most of the studies in the US are limited to the Eastern US coalfields with a very limited data base applicable to western conditions.

With the exception of Illinois, maximum subsidence factors observed in US coalfields are less than predicted by NCB.

The limit (draw angles in the US coalfields tend to be less than the 35 degree value generally accepted by NCB.

The points of inflection of the subsidence profiles over US coal mines are generally closer to the panel centerline compared to the NCB profile. This effect is dependent not only on the percentage of competent strata in the overburden but also on their locations relative to the ground surface and their thickness.

Surface strains and curvatures observed over US longwall panels have been shown to be significantly higher than NCB predictions, almost four times larger in many cases.

The pace at which subsidence occurs depends on many controls including the type and speed of coal extraction, the width, length and thickness of the coal removed, and the strength and thickness of the overburden. Observations of subsidence by Dunrud over the Geneva and Somerset Mines indicate that subsidence effects on the surface occurred within months after mining was completed, and the maximum subsidence was essentially completed within 2 years of the completion of retreat mining.

Dr. Roy Sidle found in his study of Burnout Creek that subsidence impacts to streams are temporary and self healing.

The Sidle Study is representative of the conditions found in the Lila area because:

- the lithology is very similar between the Book Cliffs and the Wasatch Plateau
- the cover thickness ranges from 600 - 800 feet which falls within the range expected at Lila, and
- the seam thickness of 8-10 feet is in the same range expected at Lila.

An Executive Summary of his study and published findings follows:

**Title : Stream response to subsidence from underground coal mining in central Utah**

5. Authors: Sidle-RC Kamil-I Sharma-A Yamashita-S

Short-term geomorphic and hydrologic effects of subsidence induced by longwall mining under Burnout Creek, Utah were evaluated. During the year after longwall mining, 0.3-1.5 m of subsidence was measured near impacted reaches of the mountain stream channel. The major channel changes that occurred in a 700-m reach of Burnout Creek that was subsided from 1992 to 1993 were: extent glides; (2) increases in pool length, numbers and volumes;

(3) increases in median particle diameter of bed sediment in pools; and (4) some constriction in channel geometry. Most of the changes appeared short-lived, with channel recovery approaching pre-mining conditions by 1994. In a 300-m reach of the South Fork drainage that was subsided from 1993 to 1994, only channel constriction was observed, although any impacts on pool morphology may have been confounded by heavy grazing in the riparian reaches during the dry summer of 1994. Similar near-channel sedimentation and loss of pool volume between 1993 and 1994 were noted throughout Burnout Creek and in adjacent, unmined James Creek. Subsidence during the 3-year period had no effect on baseflows or near-channel landslides.

No major impacts of subsidence to the surface, caused by the underground mining methods proposed during the permit term are anticipated.

The coal seam is approximately 12.5 feet thick with only about 10.5 feet being extracted, and the depth of cover ranges from 0' to approximately 2,500'. The rocks overlaying the coal seam are sandstones and mudstones with some thin bands of coal. Due to the strength of the overburden, and depth of workings, even with full seam extraction, only minimal subsidence, if any, is anticipated.

Some surface expressions of tension cracks, fissures, or sink holes may be experienced but should be insignificant. The chances of subsidence-related damage to any perceived renewable resource is minimal.

All dirt roads above the mine are in areas in excess of 1,000 feet of cover or in areas where mining will not take place. The chance of subsidence negatively effecting these dirt roads is minimal. However, in the unlikely event that cracks, fissures or sink holes are observed as a result of subsidence, the road will remain accessible by regrading and filling in the cracks, fissures or sinkholes.

The unnamed ephemeral channel in the southwest corner of the permit area is located in an area where no mining is planned or over the top of a bleeder system that will not be second mined. The chance of

subsidence negatively effecting this ephemeral channel is minimal. However, in the unlikely event that cracks, fissures or sink holes are observed as a result of subsidence the channel will be regraded and the cracks, fissures or sinkholes will be filled in by hand methods due to its inaccessibility.

A small portion of Little Park Wash, which is ephemeral, has less than 1,000 feet of cover in the southwest corner of the permit area. The portion with less than 1,000 feet of cover runs diagonally across one longwall panel and then parallel to the bleeder system in the second longwall panel. In the unlikely event that cracks, fissures or sink holes are observed as a result of subsidence the channel will be regraded and cracks, fissures or sinkholes will be filled in. Since this stream channel is accessible and is traversable by 4 wheel drive, access for repairs would not be a problem. If any subsidence repairs cannot be fixed using hand methods, small earth moving equipment could be used.

DWR and BLM Wildlife Biologists, in consultation with the Division, have determined that any loss of snake dens to subsidence would be random and a minor impact to the population of snakes.

**525.130**

A survey was conducted within the proposed permit area and adjacent area and it was determined that limited renewable resource lands exist within the area surveyed. Limited areas were found which contribute to the long-range productivity of water supply or fiber products. No structures exist within the permit area in which subsidence, if it occurred, could cause material damage or diminution for reasonably foreseeable use. See Plates 5-5 and 5-3 for areas of potential subsidence. Identification and data for the State appropriated water supplies can be found in chapter 7 section 727.

All State Appropriated water rights within the maximum limit of subsidence that could be affected, are either owned by the Operator or by the BLM. The BLM has been notified of the water rights survey by means of the

submittal of the permit application.

According to Mark Page (State Water Rights), there is not a water conversation district associated with Lila Canyon Mine.

**525.200. Protected Areas**

**525.210.** Since there are no public buildings or other facilities such as churches, school or hospitals, and since there are no impoundments with a storage capacity of more than 20 acre-feet, this section does not apply.

**525.220.** Since R645-301-525.210 does not apply, this section does not apply.

**525.230.** Since there are no planned operations under urbanized areas, cities, towns, and communities, or adjacent to industrial or commercial buildings, major impoundments, or perennial streams this section does not apply.

**525.240.** A detailed plan of the underground workings, including maps and descriptions of significant features of the underground mine, including the size, configuration, and approximate location of pillars and entries, extraction ratios, measures taken to prevent or minimize subsidence and related damage, and areas of full extraction can be found in the R<sup>2</sup>P<sup>2</sup> on file with the BLM local and state offices.

**525.300. Subsidence control.**

**525.310. Measures to prevent or minimize damage.**

**525.311** No attempt will be made to prevent subsidence in any area except where the escarpment near the outcrop is to be protected and to insure that subsidence remains within the permit area. The use of continuous miners in a pillar section as well as longwall technology provides for planning subsidence in a predictable and controlled manner. Some surface expressions of tension

cracks, fissures, or sink holes may be experienced but should be insignificant. The chances of subsidence related damage to any perceived renewable resource is minimal. The value and foreseeable use of the surface lands will not be affected by potential subsidence.

**525.312** Since there are no buildings or occupied residential dwellings or structures within the Lila Canyon project area this section does not apply.

**525.313** Room-and-pillar mining in addition to longwall methods will be used at the Lila Canyon Mine.

**525.400.** Since state-appropriated water supplies exist on the surface, 525.400 has been addressed.

**525.410** Coal will be removed using a combination of continuous miner and long wall methods as described in sections 522 and 523. Sequence and timing for the development of underground workings are also discussed in sections 522 and 523.

**525.420** Plate 5-5 shows the underground workings and depicts areas where first mining or partial mining will be utilized to protect the escarpment and raptor nests that may exist on the escarpment, and to insure that subsidence remains within the permit area. State-appropriated water rights are shown on Plates 5-3, 5-5 as well as Plate 7-1.

**525.430** No major impacts of subsidence to the surface caused by the underground mining methods proposed during the permit term are anticipated.

The coal seam is approximately 12.5 feet thick with only about 10.5 feet being extracted, and the depth of cover ranges from 0' to approximately 2,300'. The rocks overlaying the coal seam are sandstones and mudstones with some thin bands of coal. Due to the strength of the overburden and depth of workings, even with full seam extraction, only minimal subsidence if any is anticipated.



**525.440**

Aerial subsidence monitoring will be done annually while the significant subsidence is taking place. The subsidence monitoring will be initiated in an area prior to any 2<sup>nd</sup> mining being done within that area. Initially a 200 foot grid along with baseline photograph will be established prior to any 2<sup>nd</sup> mining. Approximately 12-16 control points will be needed to cover the total mining area. Six of these points will be located outside of the subsidence zone. The accuracy of this survey will be plus or minus 6" horizontally and vertically. From this data a map will be created that will show subsided areas. Once per year a follow up aerial will be performed to determine the extent and degree of active subsidence. Subsidence monitoring will continue for a minimum of 5 years after the mining ceases. If at the end of the 5 year period the annual subsidence in any of the 3 prior years measures more than 10 percent of the highest annual subsidence amount, subsidence monitoring will continue until there are 3 consecutive years where the annual subsidence amount is less than 10 percent of the highest annual subsidence amount. If for three years in a row the subsidence is measured to be less than 10% of the highest subsidence year, subsidence will be determined to be complete, and no additional monitoring for that area will be required.

A ground survey of the general mine permit area will be performed in conjunction with the quarterly water monitoring program. During the ground surveys any cracks observed will be noted and reported to DOGM.

Two areas of the permit have stream reaches with less than 1,000 feet of cover over the coal seam. As discussed in Section 525.120, it is not envisioned that subsidence will negatively impact these areas. During periods of 2<sup>nd</sup> mining under areas of intermittent or perennial streams, a ground survey will be conducted of the stream channels every two weeks. These ground surveys will be continued for a period of 3 months following the 2<sup>nd</sup> mining.

The ground survey will consist of walking and photographing the various areas of the surface over the mine where subsidence might occur. If evidence of

subsidence is identified, the area of subsidence will be surveyed and the extent of the disruption identified. Depending on the extent and location of the damage, mitigation measures will be reviewed and implemented. Due to the fact that mitigation options change with time as new technology and measures are developed, better options may be implemented in the future. However, UEI provides a commitment that where subsidence damage affects uses of the surface, the land will be restored to a condition capable of maintaining the value and reasonable foreseeable uses which it was capable of supporting before the subsidence. The surface effects will be repairs as described in Section 525.500.

**525.450 Subsidence control measures.**

- 525.451.** No backstowing or backfilling of voids used as a subsidence control measure is planned at this time. Therefore, this section is not applicable.
- 525.452.** Support pillars as a subsidence control measure is not anticipated at this time. However, an area of partial mining where an unmined coal block will be left for subsidence control is shown on Plate 5-5. First mining indicates an area where a block of coal is roomed leaving pillars for support with no mining of the remaining pillars. Partial mining as shown on Plate 5-5 indicates an area where a block of coal has been isolated without the rooms being developed. Both first mining and partial mining will leave support that can be used to control subsidence. If the partially mined area shown on Plate 5-5 is ever roomed out, the area now defined as partially mined would become an area defined as being first mined.
- 525.453.** An outcrop barrier of coal will be left to protect the escarpments at the outcrop. As per the R2P2 only first mining will be allowed within 200' of the outcrop. Mains, submains, and ventilation portals will be allowed within the outcrop.
- 525.454** No measures will be taken on the surface to prevent material damage or lessening of the

value or reasonable foreseeable use of the surface.

- 525.460.** Anticipated effects of planned subsidence may include tension cracks, fissures, or sink holes. Areas of minimal ground lowering may be anticipated. The chances of subsidence-related damage to any perceived renewable resource is minimal.
- 525.470.** Since no urbanized areas, cities, towns, public buildings, facilities, churches, schools, or hospitals exist within the permit area this section does not apply.
- 525.480.** There are no plans to change or modify the mining plan to protect any springs or seeps. Springs with water rights will be monitored for flow and quality as described in Chapter 7 Section 731.211. UEI has committed to provide for mitigation of any lost water rights as per Chapter 7 Section 727.
- 525.490.** Other information specified by the Division as necessary to demonstrate that the operation will be conducted in accordance with R645-301-525.300 will be provided.
- 525.500.** Repair of damage.
- 525.510.** If effects of subsidence are confirmed, any material damage to the surface lands will be restored to the extent technologically and economically feasible. The land will be restored to a condition capable of maintaining the value and reasonable foreseeable uses which it was capable of supporting before the subsidence.
- 525.520.** Since no structures exist within or adjacent to the permit area which could be damaged by subsidence, should it occur, this section does not apply.
- 525.530.** The Little Park Road exists in the subsidence zone. In the unlikely event the road is damaged by subsidence, UEI will repair the damage as per Section 525.120.
- 526.** A narrative explaining the construction, modification, use, maintenance and removal of the mine facilities follows. Additional information can be found in Appendix 5-4 and Chapter 8.

**526.100** Mine Structures and Facilities.

**526.110** The only existing structures are found in Horse Canyon (Part "A" of this permit) and are the remains of the United States Steel operation. Horse Canyon has received phase II bond release and the remaining structures have been left in place for future use. Only three existing structures, a 60" and a 48" CMP culverts located near the new proposed surface facilities, and the County road on top of Little Park, can be found within the Lila Canyon Permit. The existing culvert is shown on plate 5-1A. The existing road on Little Park can be found on Plate 5-1 as well as most other plates showing the surface area of the Lila Canyon Permit. Several vehicle ways will be used for water and subsidence monitoring. These ways branch off the Little Park Road and generally follow the ephemeral drainages. The ways are shown on Plate 5-1 as well as most other plates showing the surface area of the Lila Canyon Permit. More detail of the existing Little Park Road can be found in Appendix 5-4.

**526.111** The location of the existing culverts is shown on Plate 5-1A.

**526.112** Most of the existing 48" culvert is outside the permit boundary and is the Counties responsibility. UEI will grade the site so that during reclamation and operations surface flows will be directed away from the 48" culvert. The 60" culvert is in poor condition and will be replaced by the county. UEI will add on to the culvert during the operation and reclamation phase. The bottom 30' is the responsibility of the County, the upper portion is the responsibility of UEI.

**526.113** It is believed that the existing culverts were installed with the road construction around 1940.

**526.114** Since the existing culvert is going to be removed upon construction of the sediment pond this section does not apply.

**526.115** Since the existing culvert is going to be removed

upon construction of the sediment pond this section does not apply. The County road and the culvert within the disturbed area boundary will be modified or reconstructed by the County.

**526.115.1.** Since the existing culvert is going to be removed upon construction of the sediment pond this section does not apply. See Appendix 5-4 for existing road details.

**526.115.2.** Since the existing culvert is going to be removed upon construction of the sediment pond this section does not apply. See Appendix 5-4 for existing road details.

**526.115.3.** Since the existing culvert is going to be removed upon construction of the sediment pond this section does not apply. See Appendix 5-4 for existing road details.

**526.115.4.** Since the existing culvert is going to be removed upon construction of the sediment pond this section does not apply. See Appendix 5-4 for existing road details.

**526.116** The only coal mining and reclamation operations that are planed within 100 feet of the County Road are office complex, sediment pond, topsoil pile, and security shack. The permit area adjacent to the county road will be fenced to protect the public from the sediment pond and other mine associated buildings. Other than fencing no additional measures are planned after the construction phase. During construction measures to control traffic on the County Road will be taken to protect the public from construction related hazzards.

**526.116.1.** A cooperative agreement with Emery County as stated in Appendix 1-4 requires

a six foot chain link fence to be constructed adjacent to the Lila Canyon Road to provide safety to the general public in the proximity to the mine site and mine related structures and activities.

**526.116.2.** At the current time there are no plans to relocate any public road.

**526.200** Utility Installation and Support Facilities.

**526.210** All coal mining and reclamation operations will be conducted in a manner which minimizes damage, destruction, or disruption of services provided by oil, gas, and water wells, oil, gas, and coal-slurry pipelines, railroads, electric and telephone lines, and water and sewage lines which may pass over, under, or through the permit area, unless otherwise approved by the owner of those facilities and the Division. Since no existing services are found within the projected disturbed area, no negative impact to any service is anticipated.

**526.220** The new support facilities are described in section 520 and in Appendix 5-4 and shown on plate 5-2 and will be operated in accordance with the mine reclamation plan. Plans and drawings for each support facility to be constructed, used or maintained within the permit area are found in Appendix 5-4, Plates 5-7A, 5-7B, and 5-8.

**526.221** The new facilities designs shown in Appendix 5-4 prevents or controls erosion and siltation, water pollution, and damage to public or private property, and:

**526.222** The new facilities designs shown in Appendix 5-4 minimizes damage to fish, wildlife, and related environmental values; and minimizes additional contributions of suspended solids to stream flow or runoff outside the permit area to the extent possible by using the best technology currently available.

Islands of undisturbed areas within the permit area

will be visually monitored for coal fines deposition. If monitoring reveals coal fine deposition, then water sprays on the area from which the fines are originating will be warranted as per August 27, 1999 Approval Order.

**526.300** Water pollution control facilities consist of sedimentation control and properly designed sewage systems.

The sedimentation control is accomplished by containing all disturbed area runoff in a properly sized sedimentation pond. Complete designs are presented in Appendix 7-4 and on Plate 7-6.

The sewage system will consist of a septic tank and drainfield. The system is shown on Plate 5-2. Complete designs are presented in Appendix 5-4.

The drain field design and layout is shown on plate 5-2 and details are shown in Appendix 5-4.

**526.400** Since Lila Canyon Mine is an underground operation this section does not apply.

**527. Transportation Facilities.**

**527.100** All new roads within the disturbed area have been classified as primary.

**527.110** See Sections 527.120 and 527.130.

**527.120** The Slope Access Road / Portal Access Road and the Mine Facilities Road / Truck Loadout Road will be used frequently for access for a period in excess of six months, and or will transport coal, they are classified as primary roads.

**527.121** See 527.120 above.

**527.122** See 527.120 above.

**527.123** Since none of the new roads planned within the disturbed area will be retained for an approved postmining land use this section does not apply.

**527.130** There are no ancillary roads within the disturbed area. .

**527.200** A detailed design and description for each road, and conveyor to be constructed used, and maintained within the proposed permit area is included in Appendix 5-4. The roads are show on Plate 5-2.

**527.210** The specifications for each road width, road gradient, road surface, road cut, fills, embankments culverts, drainage ditches and drainage structures are shown on Plate 5-2 and in Appendixes 5-4 and 7-4.

**527.220** Since no alteration or relocation of natural drainage ways is anticipated this section is not applicable.

**527.230** Roads shall be maintained in manner that allows them to meet their design standards throughout their use.

**527.240** If any of the roads on the disturbed area is damaged by a catastrophic event, the road will be repaired as soon as practical after the damage has occurred.

**527.250** Steep cut slopes or requests for alternative specifications are not anticipated at this time therefore this section does not apply.

**528. Handling and Disposal of Coal, Overburden, etc:**

A narrative explaining the construction modifications, use, maintenance and removal of coal, overburden, excess spoil and coal mine waste.

**528.100** Coal will be mined using continuous miners and longwall equipment. The coal will be transported from the face and deposited on the underground mine belts using shuttle cars or continuous haulage equipment. The coal will be transported by a series of conveyor belts from the section to the run of mine stockpile. The coal will be removed from the run of mine stockpile by a reclaim belt to an enclosed crusher/screen. Once crushed the coal will be conveyed to a storage bin from which it will loaded in to coal haul trucks for transportation to a unit train loadout.

**528.200** Overburden: Lila Canyon is an underground operation and it is not anticipated that any material that overlays the coal seam,



consolidated, or unconsolidated, other than topsoil, will be disturbed. Therefore, this section does not apply.

**528.300** Spoil, coal processing waste, mine development waste, and noncoal waste removal, handling, storage, transportation, and disposal areas and structures are discussed below.

**528.310** Excess Spoil: Since Lila Canyon is an underground operation it is not anticipated that any spoil will be generated. Therefore this section does not apply.

**528.320** Coal Mine Waste: Coal processing waste and underground development waste brought to the surface, will be placed in disposal areas within the permit area which are approved by the Division for this purpose. Rock removed from the access slopes will be placed in the rock slope material disposal area. Portions of this material, not containing coal, will be used as structural fill for the shop/warehouse. The temporary refuse pile and slope rock disposal area are shown on Plate 5-2 and in Appendix 5-7.

**528.321** Coal processing waste produced from the crusher will not be returned to any abandoned underground workings. Any and all of the coal processing waste from the crusher will be deposited in the temporary refuse pile shown on plate 5-2 and in Appendix 5-7 and then transported to UEI's Wildcat loadout for permanent disposal.

**528.322** Refuse Piles. Each pile will meet the requirements of MSHA, 30 CFR 77.214 and 30 CFR 77.215, meet the design criteria of R645-301-210, R645-301-512.230, R645-301-513.400, R645-301-514.200, R645-301-515.200, R645-301-528.320, R645-301-536 through R645-301-536.200, R645-301-536.500, R645-301-536.900, R645-301-542.730, R645-301-553.250, R645-301-746.100, R645-301-746.200, and any other applicable requirements.

**528.323** Burning and Burned Waste Utilization.

**528.323.1.** Coal mine waste fires will be extinguished by the person who conducts coal mining and reclamation operations, in accordance with a plan approved by the Division and MSHA. The plan will contain, at a minimum, provisions to ensure that only those persons authorized by the operator, and who have an understanding of the procedures to be used, will be involved in the extinguishing operations. The coal mine waste fire plan can be found in Appendix 5-3. MSHA approval is not required unless you have an actively burning fire. (Phone conversation with Billy Owens MSHA Denver 5/31/05)

**528.323.2.** No burning or burned coal mine waste will be removed from the permitted disposal area.

**528.330** Noncoal Mine Waste.

**528.331** Noncoal mine wastes including, but not limited to, grease, lubricants, paints, flammable liquids, garbage, abandoned mining machinery, lumber and other combustible materials generated during mining activities will be placed and stored in a controlled manner in a designated portion of the permit area. The noncoal mine waste will be placed in dumpsters and emptied on a as needed basis. The designated noncoal waste area is shown on Plate 5-2.

**528.332** It is anticipated that final disposal of noncoal mine wastes will be at the ECDC facility near East Carbon City. Concrete will be disposed of in a specified area, refer to Plate 5-6 for this location. The disposal site will be located under the reclaimed coal stockpile. This area will receive the maximum fill during reclamation. Placement of this fill around the concrete will help to eliminate runoff. This will ensure that leachate and drainage does not degrade surface or underground water. The noncoal mine waste will be placed in

dumpsters and emptied on a as needed basis.

**528.333** The noncoal mine waste will be disposed of at the ECDC facility near East Carbon City.

**528.334** Notwithstanding any other provision to the R645 Rules, any noncoal mine waste defined as "hazardous" under 3001 of the Resource Conservation and Recovery Act (RCRA) (Pub. L. 94-580, as amended) and 40 CFR Part 261 will be handled in accordance with the requirements of Subtitle C of RCRA and any implementing regulations.

**528.340** A description of the disposal methods for placing underground waste and excess spoil generated at surface areas according to R645-301-211, R645-301-212, R645-301-412.300, R645-301-512.210, R645-301-512.220, R645-301-514.100, R645-301-528.310, R645-301-535.100 through R645-301-535.130, R645-301-535.300 through R645-301-535.500, R645-536.300, R645-301-536.600, R645-301-542.720, R645-301-553.240, R645-301-745.100, R645-301-745.300, and R645-301-745.400 is covered in sections 535, and 536.

**528.350** A description of measures to be employed to ensure that all debris, acid-forming and toxic-forming materials, and materials constituting a fire hazard are disposed of in accordance with R645-301-528.330, R645-301-537.200, R645-301-542.740, R645-301-553.100 through R645-301-553.600, R645-301-553.900, and R645-301-747 is included.

**528.400** Dams, embankments and other impoundments.  
See Section 700 and Appendix 7-4.

## **529. Management of Mine Openings:**

The permit application includes a description of the measures to be used to seal or manage the openings within the proposed permit area. New slope or drift openings required to be sealed shall be sealed with solid, substantial, noncombustible material for a distance of at least 25 feet into such openings. The closure design for portals, slopes, and drifts, can be found in Appendix 5-6.

- 529.100** Shafts or other exposed underground opening when no longer in use will be cased, lined, or otherwise managed as approved by the Division. All openings exposed by mining operations within the permit area will be permanently closed unless approved for water monitoring.
- 529.200** For the purposes of Underground Coal Mining and Reclamation Activities:
- 529.210** Mine entries which are temporarily inactive, but have a further projected useful service under the approved permit application, will be protected by barricades or other covering devices, fenced, and posted with signs, to prevent access into the entry and to identify the hazardous nature of the opening. These devices will be periodically inspected and maintained in good operating condition by the person who conducts the activity.
- 529.220** Since no portals are projected to return underground development waste, coal processing waste or water to the mine, this section does not apply. There is no current need to return any waste to the underground workings.
- 529.300** Section 529 does not apply to holes drilled and used for blasting.
- 529.400** No openings have been identified for use to return coal processing waste to underground workings. Therefore this section is not applicable.

**530. Operational Design Criteria and Plans.**

- 531.** General plans for the sediment pond and refuse pile are found within this section.
- 532.** Sediment control measures can be found in Chapter 7.
- 532.100** The smallest practicable area will be disturbed during the life of the project. Progressive backfilling, grading, and prompt revegetation of applicable will be completed as per R645-301-353.200.
- 532.200** Backfilled material will be stabilized to promote a

reduction of the rate and volume of runoff in accordance with R645-301-537.200, R645-301-552 through R645-301-553.230, R645-301-553.260 through R645-301-553.420, R645-301-553.600, and R645-301-553.900.

**533. Impoundments.**

**533.100** Since no impoundments meeting the criteria of 30 CFR 77.216(a) this section does not apply.

**533.200** The only impoundment planned for this site is the sediment pond. The sediment pond is a temporary structure. A detailed design for the Sediment ponds can be found in Appendix 7-4, Section 3.1 and on Plate 7-6.

**533.210** The sediment pond will be incised, except for the dam/road embankment. This embankment will be reconstructed and compacted to at least 95%. A detailed design for the Sediment ponds can be found in Appendix 7-4, Section 3.1 and on Plate 7-6.

**533.220** Where fill is to be placed, natural ground shall be removed 12" below the structure. A detailed design for the Sediment ponds can be found in Appendix 7-4, Section 3.1 and on Plate 7-6.

**533.300** Rip-rap or other protection (culverts, concrete) will be placed at all inlets and outlets to prevent scouring. A detailed design for the Sediment ponds can be found in Appendix 7-4, Section 3.1. Also see Plate 7-6.

**533.400** External slopes of the impoundment will be planted with an approved seed mix to help prevent erosion and promote stability. A detailed design for the Sediment ponds can be found in Appendix 7-4, Section 3.1. A detailed design for the Sediment ponds can be found in Appendix 7-4, Section 3.1 and on Plate 7-6.

**533.500** This section does not apply, there are no vertical highwalls associated with this impoundment.

**533.600** Since no impoundments are planned that meet the criteria of MSHA, 30 CFR 77.216(a) this section does not apply.

**533.700** Design and construction requirements, as well as operation and maintenance requirements are detailed in Appendix 7-4, Section 3.1.

**534. Roads.** The designs for surface roads can be found in Appendix 5-4.

**534.100** The roads have been designed, located, constructed and will be maintained to:

**534.110** The roads have been designed, located, constructed and will be maintained to prevent or control damage to public or private property.

**534.120** Nonacid or nontoxic-forming substances will be used in road surfacing.

**534.130** The designs for the roads can be found in Appendix 5-4.

**534.140** The reclamation plan for the roads can be found in section 542.600.

**534.150** The roads have been designed to prevent or control erosion, siltation and air pollution.

**534.200** Appropriate limits for grade, width, and surface materials have been used in the design of the roads.

**534.300** Primary Roads. Primary roads will meet the requirements of R645-301-358, R645-301-527.100, R645-301-527.230, R645-301-534.100, R645-301-534.200, R645-301-542.600, R645-301-542.600, and R645-301-762, any necessary design criteria established by the Division, and the following requirements. Primary roads will:

**534.310** The roads will be located insofar as practical, on the most stable available surfaces.

**534.320** The roads will be surfaced with rock, crushed gravel,

asphalt, or other material approved by the Division as being sufficiently durable for the anticipated volume of traffic and the weight and speed of vehicles using the road;

**534.330** The roads will be routinely maintained to include repairs to the road surface, blading, filling potholes and adding replacement gravel or asphalt. It will also include revegetating, brush removal, and minor reconstruction of road segments as necessary.

**534.340** Culverts if required will be designed, installed, and maintained to sustain the vertical soil pressure, the passive resistance of the foundation, and the weight of vehicles using the road.

**535. Spoil:** It is anticipated that no spoil will be produced at the Lila Canyon Mine therefore this section is not applicable.

**536. Coal Mine Waste:** The proposed Lila Canyon Mine will produce 2 separate types of coal mine waste:

1. Normal coal processing waste or refuse and;
2. Underground development waste (rock slope material).

The rock slope material / underground development waste will be examined and tested as necessary to determine acid- or toxic-forming potential.

Coal Processing waste and any underground development waste containing too much coal to leave underground, will be disposed of in the refuse storage area as described further in this chapter and in Appendix 5-7.

It is not anticipated that any underground waste other than the rock slope material / underground development waste will be brought to the surface. Coal processing waste and underground development waste brought to the surface will be placed in a controlled manner and have a design certifications describe under R645-301-512 if appropriate.

- 536.100** The refuse pile at Wildcat has been designed using current prudent engineering practices and will meet design criteria established by the Division.
- 536.110** The refuse pile will be designed to attain a minimum long-term slope stability safety factor of 1.5. See Appendix 5-7.
- 536.120** The refuse pile will be constructed on natural ground once the topsoil has been removed according to section 230.232. There are no underground mine workings in the immediate area of the refuse pile. All mine workings are found at a higher elevation than the refuse pile.
- 536.200** Underground development waste brought to the surface and coal processing waste deposited in the refuse pile will be deposited according to the plan described in Appendix 5-7.
- 536.210** Refuse Pile construction described in Appendix 5-7, will ensure mass stability and prevent mass movement during and after construction;
- 536.220** Refuse Pile construction per the plan in Appendix 5-7 will not create a public hazard; and
- 536.230** Will prevent combustion.
- 536.300** Since no spoil fills will be generated this section does not apply.
- 536.400** Since there will not be any impounding structures constructed of coal mine waste this section does not apply.
- 536.500** As discussed in Section 536 and 536.300, it is proposed to dispose of the rock slope material / underground development waste within the rock disposal area and be used as structural fill as shown on Plate 5-2.
- 536.510** It is not anticipated that coal mine waste materials from activities located outside the permit area be disposed of in the permit area. Therefore this section does not apply.
- 536.520** It is not anticipated that coal mine waste will be brought to the surface then taken back underground for disposal



therefore this section does not apply.

- 536.600** In areas where slope rock or coal processing waste is deposited, the topsoil will be removed and stored in the topsoil stockpile area until reclamation.
- 536.700** It is not anticipated that coal processing waste will be returned to abandoned underground workings therefore this section does not apply
- 536.800** Since no coal processing waste banks, dams, or embankments are planned for the Lila Canyon Mine therefore, this section does not apply.
- 536.900** Refuse Piles. (See Appendix 5-7) The refuse pile is designed to meet the requirements of R645-301-210, R645-301-512.230, R645-301-513.400, R645-301-514.200, R645-301-515.200, R645-301-528.322, R645-301-528.320, R645-301-536 through R645-301-536.200, R645-301-536.500, R645-301-536.900, R645-301-542.730, R645-301-553.250, R645-301-746.100 through R645-301-746.200, and the requirements of MSHA, 30 CFR 77.214 and 30 CFR 77.215.

#### **537. Regraded Slopes.**

- 537.100** Each application will contain a report of appropriate geotechnical analysis, where approval of the Division is required for alternative specifications or for steep cut slopes under R645-301-358, R645-301-512.250, R645-301-527.100, R645-301-527.230, R645-301-534.100, R645-301-534.200, R645-301-534.300, R645-301-542.600, R645-301-742.410, R645-301-742.420, R645-301-752.200, and R645-301-762.

#### **540. Reclamation Plan. (See Appendix 5-8 for reclamation plan.)**

##### **541. General.**

- 541.100.** The operator is committed to performing all reclamation as in accordance with R645 rules.
- 541.200.** N/A. The operator is not involved in surface mining activities.

**541.300.** The operator is committed to the removal of all equipment facilities and structures upon cessation of mining activities.

**541.400.** The operator will address all reclamation activities as referenced in Chapter 5 of this document.

## **542 Narratives, Maps and Plans.**

**542.100.** See Table 3-3 time table based on project reserves markets and life of mine.

**542.200.** The perimeter of the disturbed area contains approximately 42.6 surface acres within the disturbed area but only 33.86 acres will be disturbed leaving 8.74 acres of undisturbed islands within the disturbed area. The following R645 regulations will give detailed description and reclamation procedures to address these areas of disturbance. The reclamation plan for the sediment pond and drainage control structures can be found in Appendix 7-4.

Topsoil amounts can be found in Section 232.100 and are calculated from Plate 203. Concrete amounts can be calculated from the text in Section 520. Coal Mine Waste volumes can be found in Appendix 5-7. Volumes were calculated using a Cad system.

**542.300.** Included.

**542.310.** Included. (See Plates 5-6 & 7-7)

**542.320.** There will not be any surface facilities left post mining.

**542.400.** Not applicable. No surface facilities will remain post bond liability period.

**542.500.** A reclamation time table is included as Table 3-3.

**542.600.** All roads within the disturbed area will be reclaimed

immediately after they are no longer needed for mining and reclamation operations.

- 542.610.** The time table of reclamation activities will enable the roads to be removed concurrently with reclamation activities. So, no closures specific to traffic would be anticipated.
- 542.620.** All bridges and culverts will be removed concurrent with reclamation.
- 542.630.** All disturbed areas will be ripped and top soiled prior to revegetation activities in compliance with all applicable R645 regulations. (See Appendix 5-8)
- 542.640.** Road surfacing materials such as sand and gravel, which are not suitable for revegetation establishment will be buried on site and covered with a minimum of two feet of material that would support vegetation. Concrete will be disposed of in the designated area and covered with four feet of cover. Asphalt will be disposed of off site, either in a landfill or sent to a recycling facility.
- 542.700.** Final Abandonment of Mine Openings and Disposal Areas.

  - 542.710.** Appendix 5-6 depicts a typical seal that will be constructed at all mine openings.
  - 542.720.** No excess spoil is anticipated at this time.
  - 542.730.** All coal mine waste will be placed in the waste disposal area as shown on Plate 5-2 or sent to the Wildcat loadout, and reclaimed in accordance with R645 regulations.
  - 542.740.** Disposal of Noncoal Mine Wastes.

    - 542.741.** All non coal waste will be temporarily stored on site in approved waste bins and commercially picked up and transported to

an approved disposal site. Non Coal waste generated during reclamation (such as concrete structure, buried culverts, utility lines, septic systems etc.) will be buried in the refuse disposal area and covered with a minimum of four feet of fill.

**542.742.** No noncoal waste will be stored on site or disposed of on site during the life of the mine.

**542.800.** A detailed cost break down is included in Chapter 8. Appendix 8-1 relative to bonding.

**550 Reclamation Design Criteria and Plans.** Each permit application will include site specific plans that incorporate the following design criteria for reclamation activities.

**551.** All underground openings will be sealed as detailed in Appendix 5-6.

**552.** Permanent Features.

**552.100.** In course of reclamation, areas that have been recontoured and top soiled will be "pock-marked" creating small basins that will facilitate vegetation establishment as well as minimizing erosion.

**552.200.** No permanent impoundments will be left post reclamation.

**553.** The operator will comply with all regulations applicable to underground mining activities relative to backfilling and grading as required by R645 regulations.

Some minor cut slopes along the reclaimed road may be left after reclamation due to the difficulty and inability to reclaim all material pushed over the side while making the road cut. See plate 5-7B-1 cross section 16+00 for details. UEI will make reasonable efforts to minimize the cut slopes being left.

**553.100.** Disturbed Areas. Disturbed areas will be backfilled and graded to:

- 553.110** The operator will obtain a post mining topography similar in form as what existed premining.
- 553.120** Since Lila Canyon is an underground operation, no spoil piles will be created. Minor highwalls may be created with the development of the rock slope portals. Upon completion of mining these entries will be seal as per Closure for Mine Openings Appendix 5-6 and all highwalls will be eliminated during the reclamation phase of the operation. Plate 5-9 shows the proposed portal plan. During reclamation, suitable material will be placed against the portals. This material will be shaped to eliminate the highwall and to bring the slope back to the approximate original contour. A Cat model 216/226 or equivalent will be used to complete the final grading of the fan portal. After final grading the 216/226 will be airlifted out using a KMAX helicopter or equivalent.
- 553.130** All fill slope will have a static safety factor of 1.3 as shown in Appendix 5-5.
- 553.140** Erosion and water pollution will be minimized on site by the use of drainage control structures (burms, channels and silt fence) and the use of small depression, soil tackifiers, mulch and sediment pond design. No water is anticipated leaving the reclaimed site prior to adequate treatment in the form of retention and/or filtration that does not meet and/or exceed UPDES standards.
- 553.150** The post mining land use of wildlife and domestic grazing should be enhanced to some degree with the revegetation of a more desirable seed mix and a vegetative cover in excess of what was present premining.
- 553.200** Spoil and Waste.
- 553.210** All underground development waste brought to the surface and coal processing waste generated on

the surface as a result of coal processing will be placed in the coal mine waste (rock slope material) disposal area or shipped to Wildcat loadout, and reclaimed in accordance with R645 regulations.

**553.220** Since no spoil will be produced this section does not apply.

**553.221** All vegetation and /or organic material will be removed prior to any coal mine waste being stored.

**553.222** All useable topsoil or topsoil substitute will be removed from the structural fill and refuse areas prior to use. Table 2-1 shows estimates of salvageable soil by soil type based on current NRCS soil inventories. The location of the soil storage are shown on Plate 5-2. This material will be spread over the recontoured structural fill and refuse areas prior to seeding and mulching.

**553.223** Since no spoil will be produced this section does not apply.

**553.230** All recontoured areas will be compacted to minimize slippage. The area will then be over laid with topsoil and ripped. In addition the area will be "pock-marked" to minimize the potential for erosion as well as enhance revegetation establishment. It is not anticipated that soil will be disturbed in areas to steep for equipment to operate.

**553.240** The structural fill area will have slopes of less than 8% upon final recontouring and revegetated to enhance the post mining land use of grazing and wildlife habitat.

**553.250** The refuse pile (rock slope disposal area) design is shown in appendix 5-7.

**553.260** The operator will commit to all applicable R645 regulations relative to disposal of coal processing

waste.

**553.300** Any combustible materials or acid and toxic forming materials exposed used or produced during mining will be disposed of in the refuse disposal area at Wildcat and treated as refuse. This material will be covered by four feet of fill. Noncoal waste will be disposed of as described in Section 528.331.

**553.400** Cut-and-fill terraces may be allowed by the Division

**553.410** No cut and fill terraces will be required.

**553.420** No terraces will be required for post mining land use.

**553.500-540 and 553.600-553.650.500**

The only area that falls under these provisions are the reclaimed Horse Canyon mine which lies in the north west portion of the lease area and is addressed under approved MRP Act #0013 (Part "A").

**553.700-553.900**

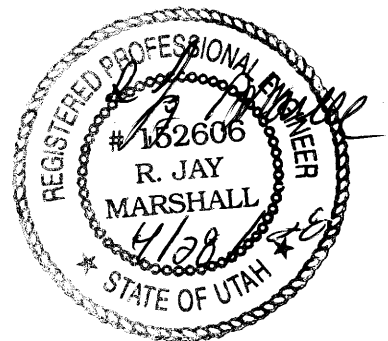
This operation will only involve underground mining and as such the above referenced regulations do not apply.

**560.** Performance Standards. Coal mining and reclamation operations will be conducted in accordance with the approved permit and requirements of R645-301-510 through R645-301-553.

## APPENDIX 5-4

### NEW FACILITY DESIGN

Information for Appendix 5-4 is mostly hard copies. Electronic copies do not exist for all information contained within the Appendix.





## **APPENDIX 5-4**

### **ROADS**

#### Existing Lila Canyon Road: (County Road 126)

The Lila Canyon road runs from the Horse Canyon Mine to the proposed Lila Canyon surface facilities then continues from the Lila Canyon surface to U.S. Highway 191/6. This road was constructed in the early 1940's to provide access to coal reserves south of the Horse Canyon Mine. The road extends south from Horse Canyon following the base of the Book Cliffs escarpment then turns south connecting to Highway 191/6. The road right-of-way consists of a total width of 100 feet. A small portion of this road is on BLM surface and a BLM right-of-way was issued to Kaiser Steel Corporation and is now owned by UEI. The portions of this road is on private property owned by UEI and William Marsing. Emery County also claims the road under the RS-2477 federal road designation. Any constructed facilities, including the 6 foot chain link fence, would not be placed on the county road right-of-way. County road 126 has been used for years by residents of Carbon and Emery Counties for recreation, ranching, and hunting purposes. Over the last 50 years, the majority portion of this road received little, if any maintenance. However, the first 2.5 miles from U.S. 191/6 to the corral has received frequent maintenance.

Main access to the mine site will be from U.S. Highway 191/6. The proposed access road will be constructed by Emery County and will be designated as Lila Canyon Road 126. Some areas of the road will be upgraded others areas will be

realigned. This road will be a two lane, 30 foot wide gravel surface Class B road, totaling approximately 4.7 miles in length. The proposed road reconstruction and realignment will be designed for a maximum speed of 45 miles per hour, would be constructed according to the standards of the American Department of Transportation 1992 Standard Specifications for Road and Bridge Construction. The realigned and reconstructed road will provide a safer and more direct route to the mine from U.S. Highway 191/6. The road will follow closely the existing RS-2477 road. Only the section of county road 126 from U.S. Highway 191/6 to Lila Canyon surface will be improved and or reconstructed. The county has no current plans to upgrade the section of 126 from Lila Canyon to Horse Canyon. All engineering, construction and maintenance on the reconstructed and realigned road will be implemented and controlled by the Emery County Road Department. Emery County will also control all necessary rights-of-way.

New Mine Facility Road:

The mine facility road shown on Plate 5-2 begins at the edge of County Road 126 and allows for access to the various surface facilities. The road has been located in the most practical location taking into consideration grade, stability, and alignment. Employees will use this road to access the office & bathhouse facilities. Coal haul trucks will use this road to access the scales and truck loadout. All supplies will be hauled on a short portion of this road from the supply storage area to the slope access road. The road will initially be graveled but will be paved in the long term to minimize dust and provide good surface for heavy truck traffic as well as facility access. The facility access road will be approximately 24' wide to provide

for two lane traffic and will have the appropriate drainage controls to insure long term life and low maintenance. The has been constructed and will be maintained according to the appropriate R645-534 and R645-527 regulations.

#### New Slope Access / Portal Access Road

The slope access road splits off the facility access road near the north-east corner of the equipment and supply storage area, and follows an alignment that takes into consideration grade and direct access. The slope access road will be used to provide access to the rock slopes which in-turn proved access to the underground workings. The slope access road will be used as access for all men, material and equipment need in the mine. Since the slope access road provides for frequent access for men, equipment and materials for a period of six months or longer the slope access road is classified as a primary road. The slope access road will be designed, constructed, and maintained according to appropriate R645 regulations. The slope access road is shown on Plate 5-2.

#### Existing Little Park Road:

The Little Park road runs from the Horse Canyon Mine, up to the top of Little Park, and across Little Park to Turtle Canyon, then down Turtle Canyon to the Green River. This road has been used for years by residents of Carbon and Emery Counties for recreation, ranching, and hunting purposes. It is a public road and is maintained by either the BLM and or Emery County. The road is "Cherry Stemed" by the new BLM wilderness reinventories. The road is used by UEI to monitor water

and will continue to be used on a frequent basis for subsidence monitoring and water monitoring. Plate 5-1 as well as others show the location of the Little Park road.

Existing Vehicle Ways:

Several vehicle ways off from the Little Park road are used by UEI for water monitoring. UEI will continue to use these vehicle ways frequently for water and subsidence monitoring. The vehicle ways vary from 5 to 15 feet wide. These ways are located either in dry stream channels, or are old drilling roads both accessed by ATV. No future maintenance is projected for these vehicle ways. Plate 5-1 as well as others show the location of the vehicle ways used by UEI.

# COAL MINE

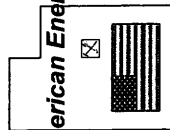
## DRAWING INDEX

**OVERALL SITE PLAN**

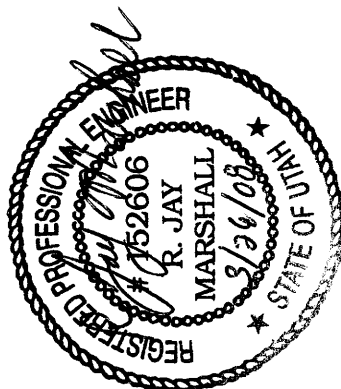
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00060022-C-211-02	STORM WATER DETENTION POND - CROSS SECTIONS 3+00 - 5+50
00060022-C-211-03	STORM WATER DETENTION POND - CROSS SECTIONS 6+00

**UtahAmerican Energy Inc.**



UTAH



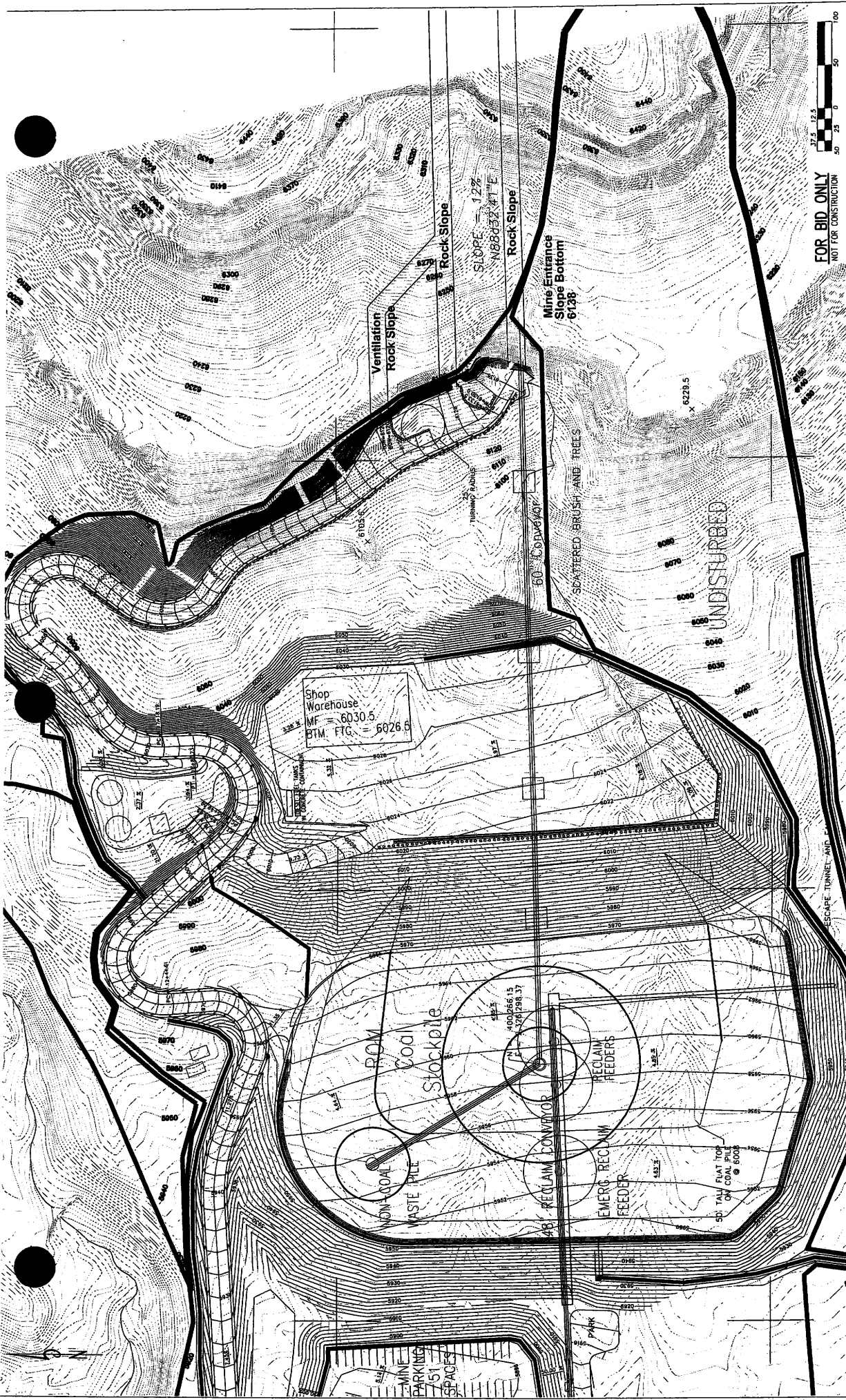
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FOR BID ONLY  
NOT FOR CONSTRUCTION

SCALE 1" = 50'  
PROJECT NO. 2006022  
2006022-1100.dwg  
2 OF 3  
2006022-C-101-02

LILA CANYON COAL MINE  
GRADING & DRAINAGE PLAN  
NORTHEAST AREA  
PRICE: UTAH

PRECISION SYSTEMS  
ENGINEERING, INC.  
Sandy, Utah 84070 USA

DATE	BY	CHKD	APPD	REVISIONS
11-20-07	J.A.	J.A.		ISSUE RECORD
11-20-07	J.A.	J.A.		REVISIONS

DATE	BY	CHKD	APPD	REVISIONS
11-20-07	J.A.	J.A.		ISSUE RECORD
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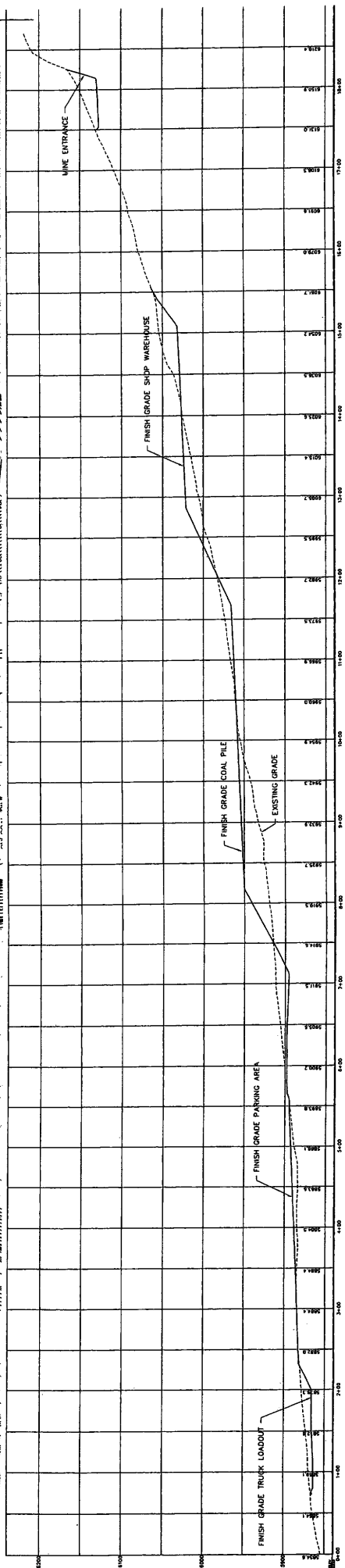
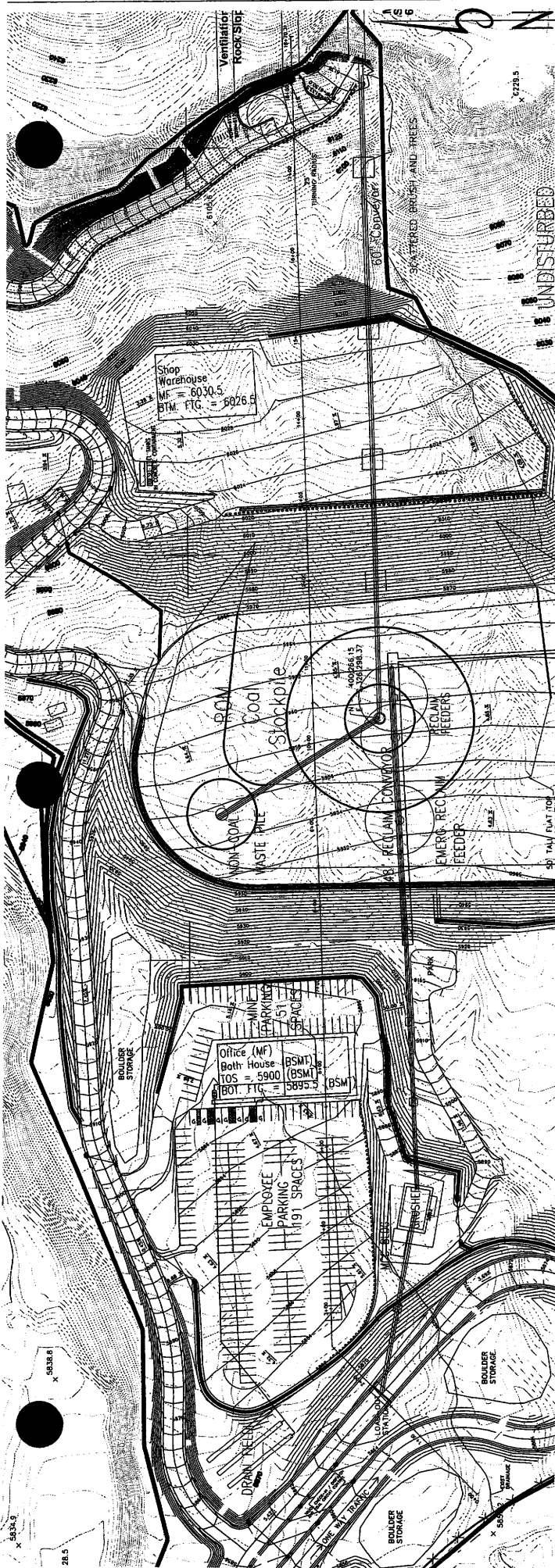
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11-20-07	J.A.	J.A.		REVISIONS







**FOR BID ONLY**  
NOT FOR CONSTRUCTION

**LILA CANYON COAL MINE**  
**OVERALL SITE**  
**PLAN AND PROFILE**  
PRICE, UTAH

PROJECT NO. 2006022  
JOB NO. 2006022-1100.dwg  
1 OF 1  
2006022-C-102

**PRECISION SYSTEMS**  
**ENGINEERING, INC.**  
Sandy, Utah 84070 USA

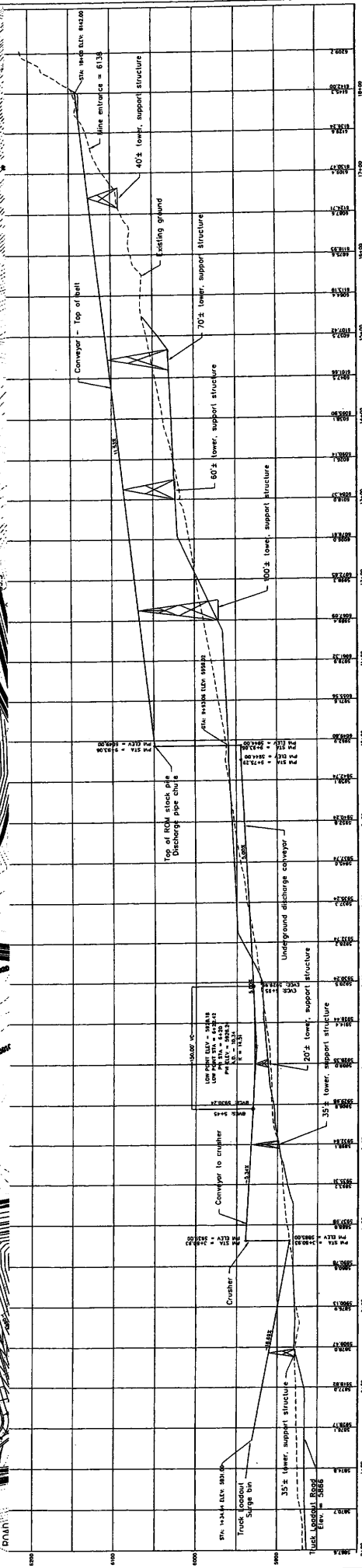
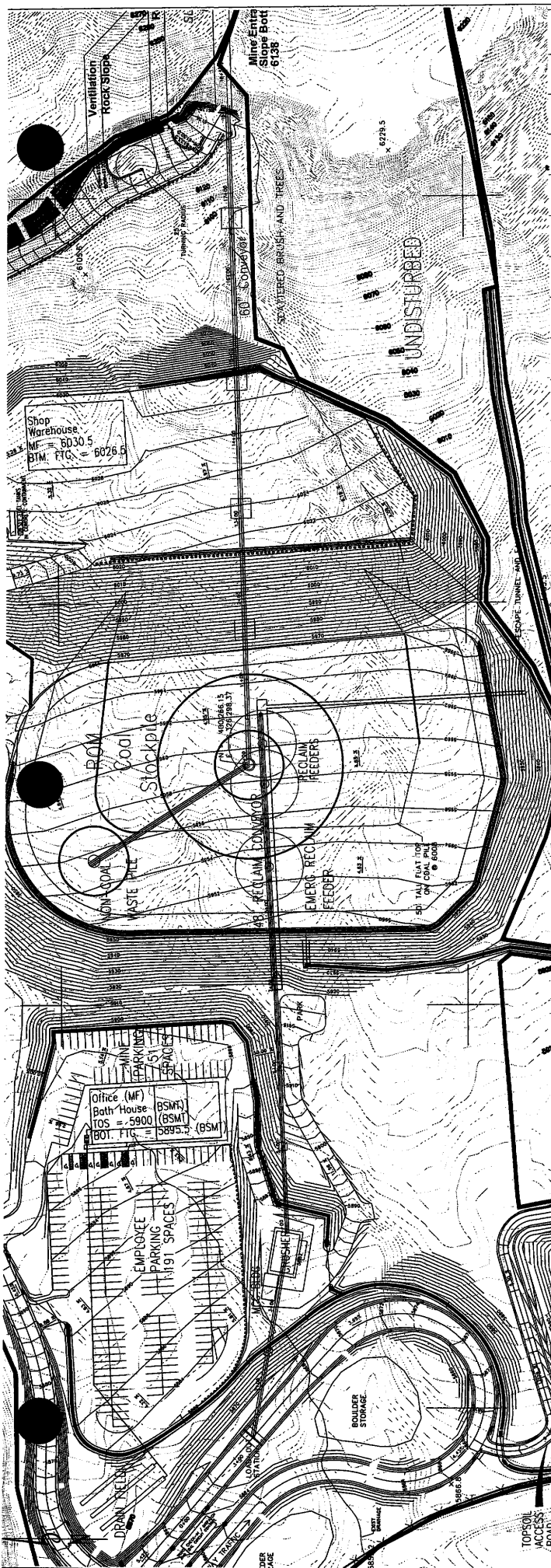
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DATE	BY	CHK	APP	DATE	BY	CHK	APP
11-26-07	JAN	MANAGER	NO	11-26-07	JAN	MANAGER	NO
11-26-07	JAN	MANAGER	NO	11-26-07	JAN	MANAGER	NO
11-26-07	JAN	MANAGER	NO	11-26-07	JAN	MANAGER	NO
11-26-07	JAN	MANAGER	NO	11-26-07	JAN	MANAGER	NO

DATE	BY	CHK	APP	DATE	BY	CHK	APP
11-26-07	JAN	MANAGER	NO	11-26-07	JAN	MANAGER	NO
11-26-07	JAN	MANAGER	NO	11-26-07	JAN	MANAGER	NO
11-26-07	JAN	MANAGER	NO	11-26-07	JAN	MANAGER	NO
11-26-07	JAN	MANAGER	NO	11-26-07	JAN	MANAGER	NO



**FOR BID ONLY**  
**NOT FOR CONSTRUCTION**

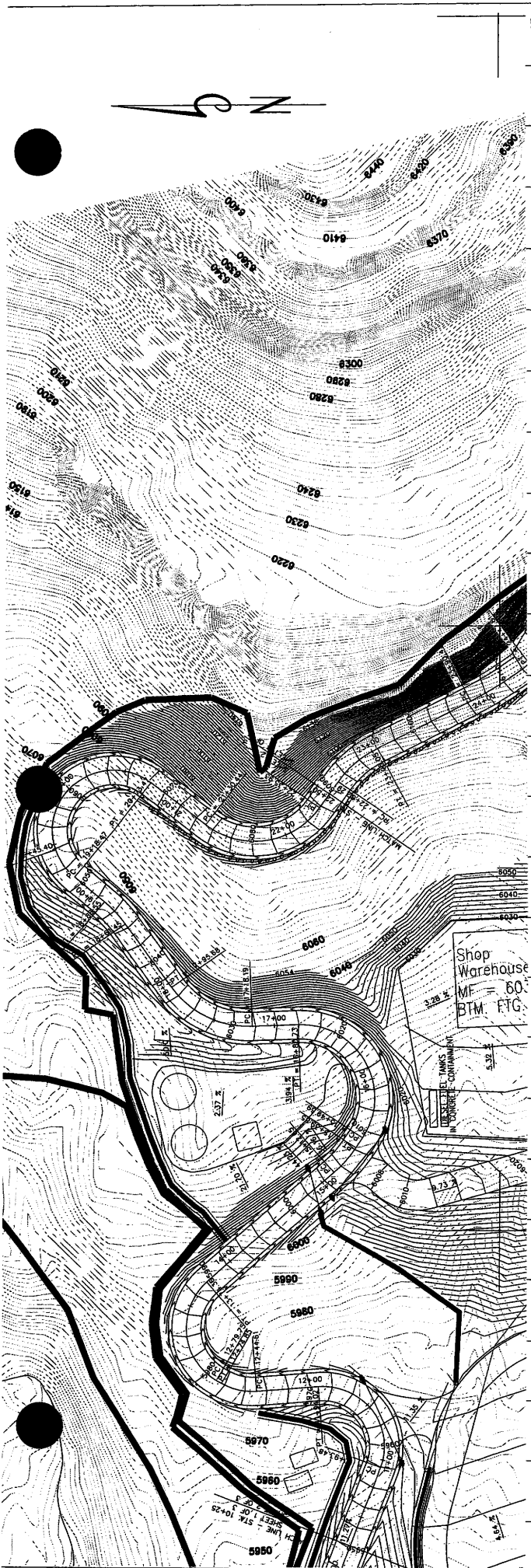
**LILA CANYON COAL MINE  
CONVEYOR BELT  
PLAN AND PROFILE**  
PRICE, UTAH



**PRECISION SYSTEMS  
ENGINEERING, INC.**  
9805 South 500 West  
Sandy, Utah 84070 USA

[illegible]





EXISTING GRADE

Profile view of a road section. The vertical axis represents elevation in feet, ranging from 5000 to 5085.50. The horizontal axis represents stationing, with labels for MATCH LINE - STA. 10+25, MATCH LINE - STA. 22+50, and SHEET 1 OF 3, SHEET 2 OF 3, and SHEET 3 OF 3. The profile shows a dashed line for EXISTING GRADE and a solid line for FINISH ROAD GRADE. A vertical curve is indicated with a length of 11.28'. The elevation at the start of the curve is 5083.32, and the elevation at the end of the curve is 5083.47. The profile also shows a vertical curve with a length of 12.00'.

SCALE 1" = 40'  
PROJECT NO. 2006022  
CAD NO. 2006022-L100.dwg  
2 OF 3  
2006022-C-110-02

**LILA CANYON COAL MINE  
MINE PORTAL ROAD  
PLAN AND PROFILE  
PRICE, UTAH**

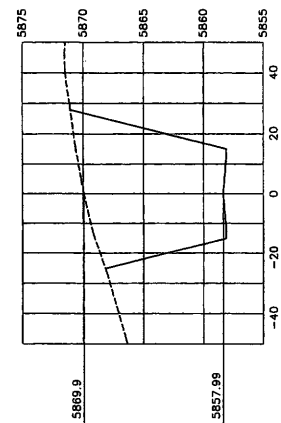
**PRECISION SYSTEMS  
ENGINEERING, INC.**  
9805 South 500 West  
Sandy, Utah 84070 USA

					DRAWN	WAH	11-14-07
					CHECKED	GA	11-20-07
					PROJECT ENG	BL	11-20-07
					PROJECT MGR	CS	11-20-07
					ENG. MANAGER	CS	11-20-07
					DESIGN MGR	CS	11-20-07
							ENGINEERING RECORD
DATE	11-28-07	ISS	103	REV	1	JAY MARSHALL	TO
							FOR

[illegible]

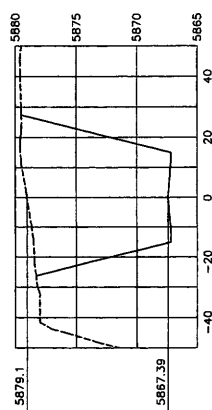






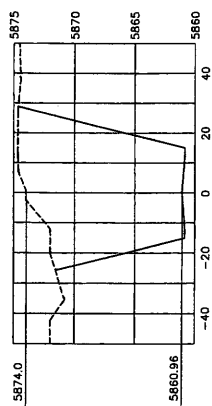
STATION 0+49.66

**STATION 0+50.00**



STATION 1+50

STATION 1+70.47

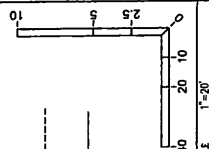


**STATION 0+00**

STATION 1+00

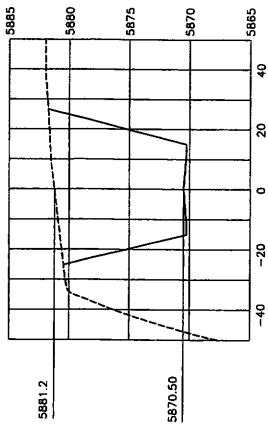
EXISTING GRADE

FINISHED GRADE

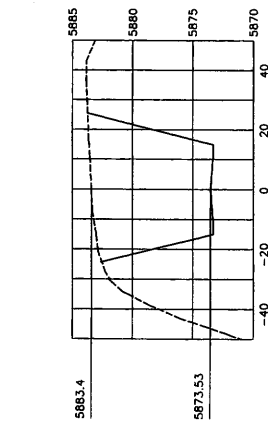


**FOR BID ONLY**  
**NOT FOR CONSTRUCTION**

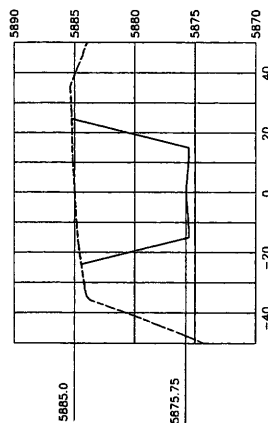
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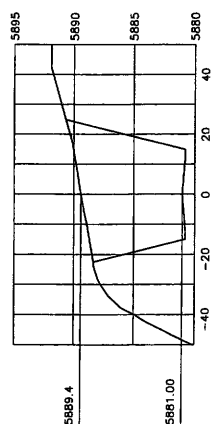
STATION 2+00



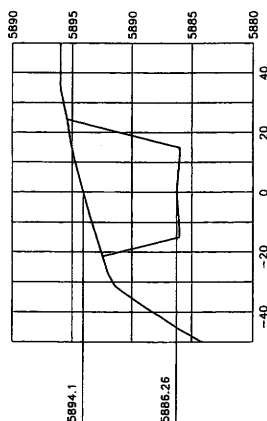
**STATION 2+28.90**



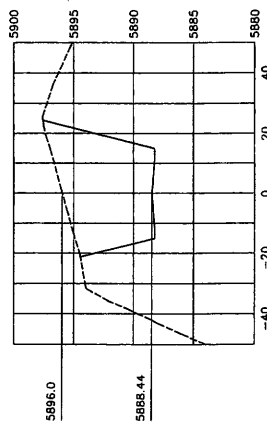
STATION 2+50



STATION 34+00



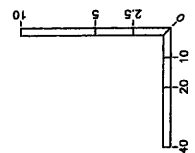
STATION 3+50



STATION 3+70.80

EXISTING GRADE

FINISHED GRADE

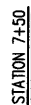
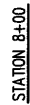
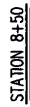
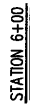


**FOR BID ONLY**  
**NOT FOR CONSTRUCTION**

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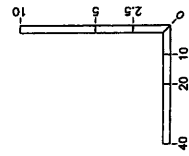






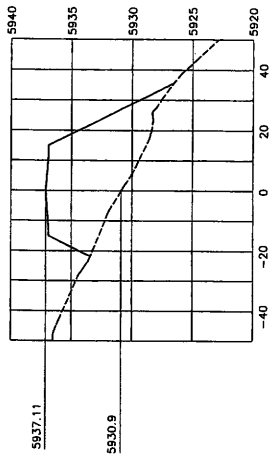
EXISTING GRADE -----

FINISHED GRADE \_\_\_\_\_

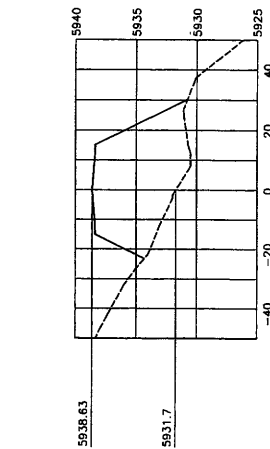


**FOR BID ONLY**  
**NOT FOR CONSTRUCTION**

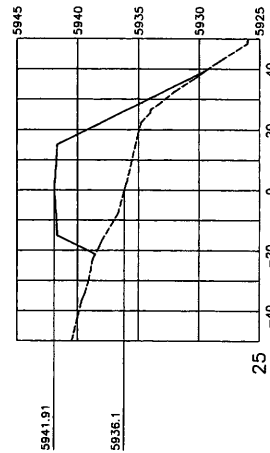
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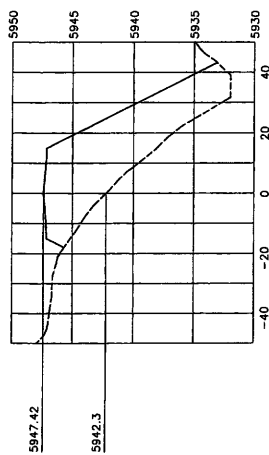
STATION 9+00



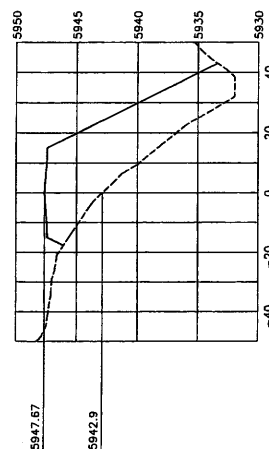
STATION 9+16.72



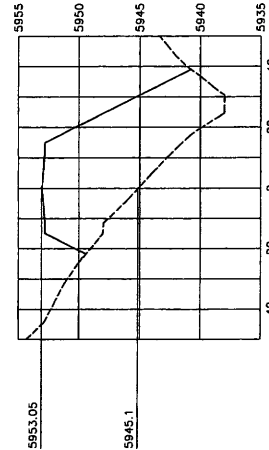
STATION 9+50



STATION 10+00



STATION 10+02.23



STATION 10+50

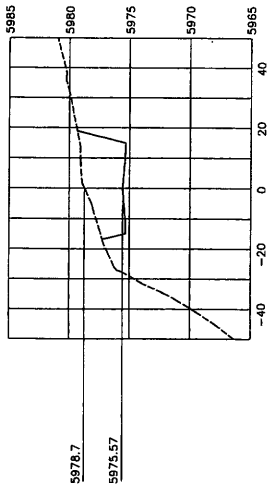
EXISTING GRADE -----  
FINISHED GRADE -----

FOR BID ONLY  
NOT FOR CONSTRUCTION

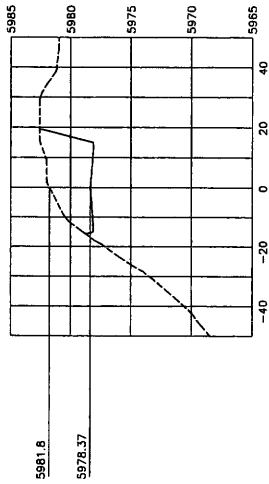
PRECISION SYSTEMS ENGINEERING, INC. 8805 South 800 West Sandy, Utah 84070 USA		LILA CANYON COAL MINE MINE PORTAL ROAD CROSS SECTIONS PRICE, UTAH		SCALE: 1"=20' DATE: 11/20/07 DWG NO: 06022-C-111.dwg 5 OF 20 2006022-C-111-05/A	
NOV 30, 2007	12:49pm	P:\2006\200602-4\11DRA-1\PSEDES-1\306CF-1\CIV\LILACA-3\06022-C-111.dwg	REV	DATE	BY
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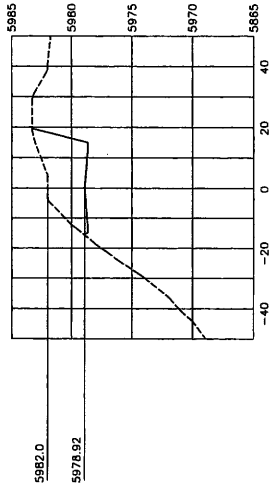
FOR BID ONLY  
NOT FOR CONSTRUCTION



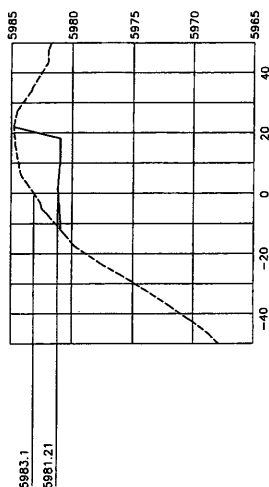
STATION 12+50



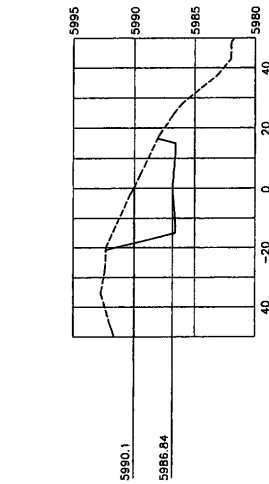
STATION 12+74.85



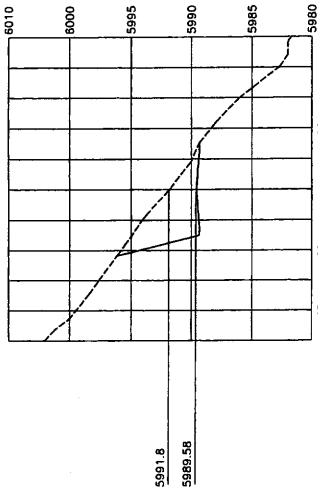
STATION 12+79.75



STATION 13+00

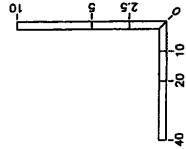


STATION 13+50



STATION 13+74.36

EXISTING GRADE  
FINISHED GRADE



SCALE 1"=20'  
PROJECT NO. 2006022  
JOB NO. 06022-C-111.dwg  
7 OF 20  
2006022-C-111-07

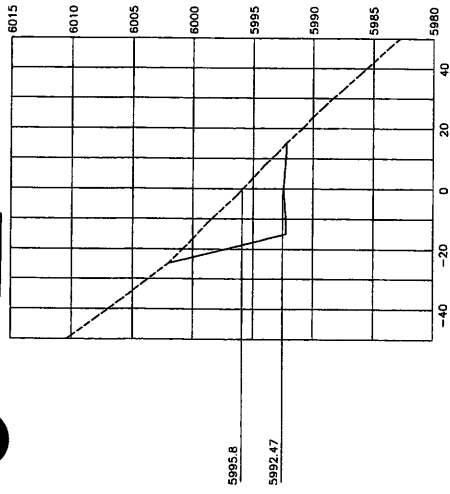
LILA CANYON COAL MINE  
MINE PORTAL ROAD  
CROSS SECTIONS  
PRICE, UTAH

PRECISION SYSTEMS  
ENGINEERING, INC.  
9805 South 500 West  
Sand, Utah 84079 USA

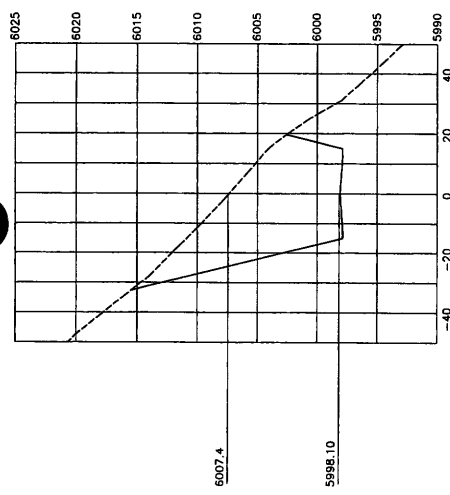
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11-20-07	J. J.	J. J.	J. J.	1.2
11-20-07	J. J.	J. J.	J. J.	1.3
11-20-07	J. J.	J. J.	J. J.	1.4
11-20-07	J. J.	J. J.	J. J.	1.5
11-20-07	J. J.	J. J.	J. J.	1.6
11-20-07	J. J.	J. J.	J. J.	1.7
11-20-07	J. J.	J. J.	J. J.	1.8
11-20-07	J. J.	J. J.	J. J.	1.9
11-20-07	J. J.	J. J.	J. J.	2.0

DATE	BY	CHKD	APPD	REVISION
11-20-07	J. J.	J. J.	J. J.	1.0
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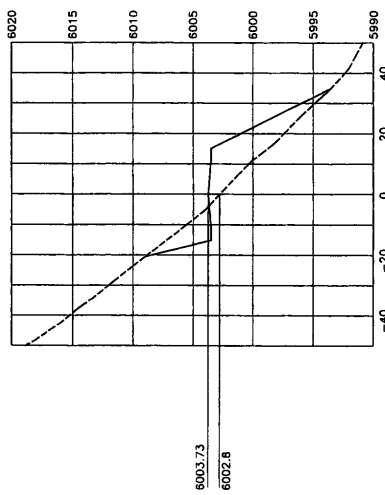
FOR BID ONLY  
NOT FOR CONSTRUCTION



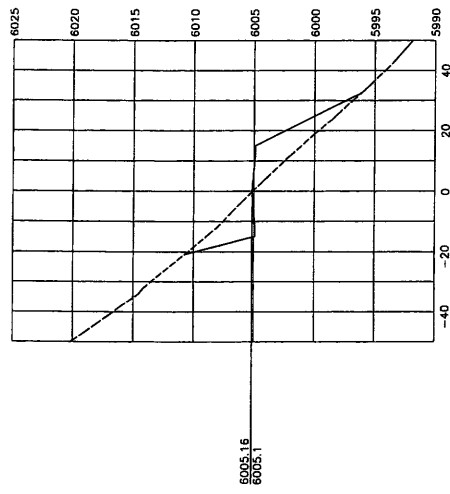
STATION 14+00



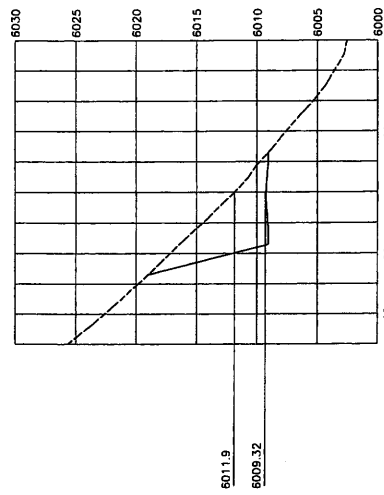
STATION 14+50



STATION 15+00

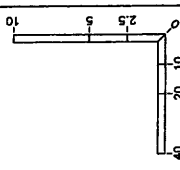


STATION 15+12.65



STATION 15+49.59

EXISTING GRADE  
FINISHED GRADE



SCALE: 1"=20'  
PROJECT NO.: 2006022  
DATE: 06/02/07  
8 OF 20  
2006022-C-111-08

LILA CANYON COAL MINE  
MINE PORTAL ROAD  
CROSS SECTIONS  
PRICE, UTAH

PRECISION SYSTEMS  
ENGINEERING, INC.  
9805 South 500 West  
Sandy, Utah 84070 USA

DATE	BY	CHKD	APPD
11-20-07	J. L.		
11-20-07	J. L.		
11-20-07	J. L.		
11-20-07	J. L.		

DATE	BY	CHKD	APPD
11-20-07	J. L.		
11-20-07	J. L.		
11-20-07	J. L.		
11-20-07	J. L.		

DATE	BY	CHKD	APPD
11-20-07	J. L.		
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11-20-07	J. L.		
11-20-07	J. L.		

DATE	BY	CHKD	APPD
11-20-07	J. L.		
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11-20-07	J. L.		

DATE	BY	CHKD	APPD
11-20-07	J. L.		
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DATE	BY	CHKD	APPD
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DATE	BY	CHKD	APPD
11-20-07	J. L.		
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DATE	BY	CHKD	APPD
11-20-07	J. L.		
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DATE	BY	CHKD	APPD
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DATE	BY	CHKD	APPD
11-20-07	J. L.		
11-20-07	J. L.		
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11-20-07	J. L.		



FOR BID ONLY  
NOT FOR CONSTRUCTION

REVISIONS

DATE

BY

CHK

DATE

BY

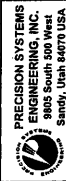
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DATE

BY

CHK

DATE

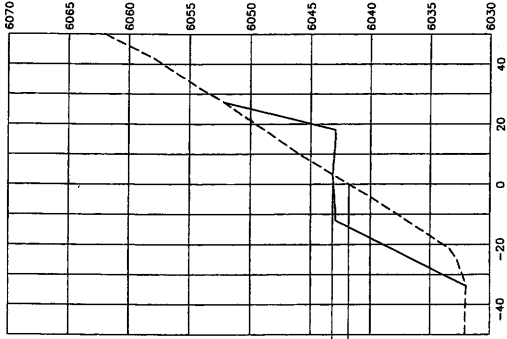


LILA CANYON COAL MINE  
MINE PORTAL ROAD  
CROSS SECTIONS  
PRICE, UTAH

PROJECT NO. 2006022  
DWG NO. 06022-C-111.dwg  
10 OF 20  
2006022-C-111-10

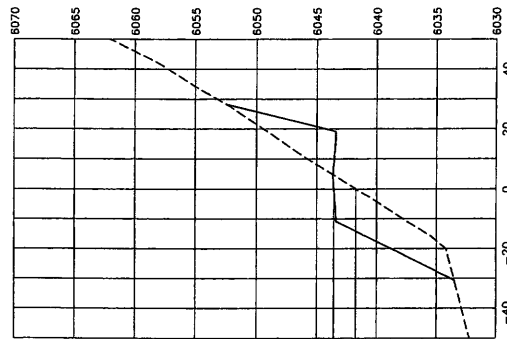
NO.	DATE	BY	CHK	REVISION
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2	11-20-07	J.L.	J.L.	2.0
3	11-20-07	J.L.	J.L.	3.0
4	11-20-07	J.L.	J.L.	4.0
5	11-20-07	J.L.	J.L.	5.0
6	11-20-07	J.L.	J.L.	6.0
7	11-20-07	J.L.	J.L.	7.0
8	11-20-07	J.L.	J.L.	8.0
9	11-20-07	J.L.	J.L.	9.0
10	11-20-07	J.L.	J.L.	10.0

STATION 18+50



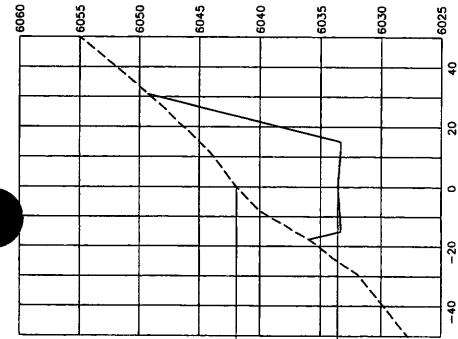
6043.15  
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STATION 18+54.15



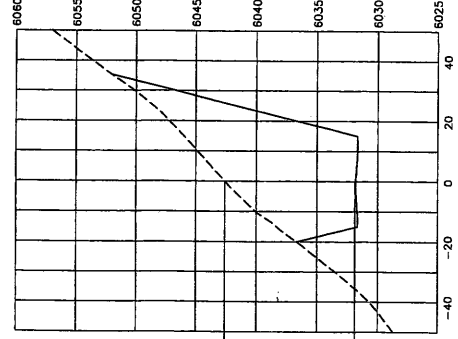
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STATION 17+65.14



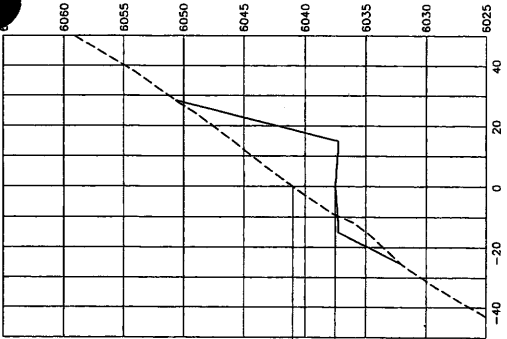
6041.5  
6033.80

STATION 17+50



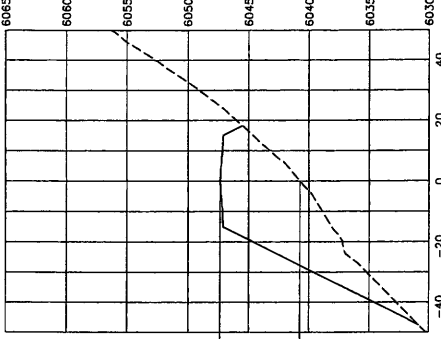
6042.1  
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STATION 18+00



6040.8  
6037.52

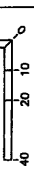
STATION 18+87.35



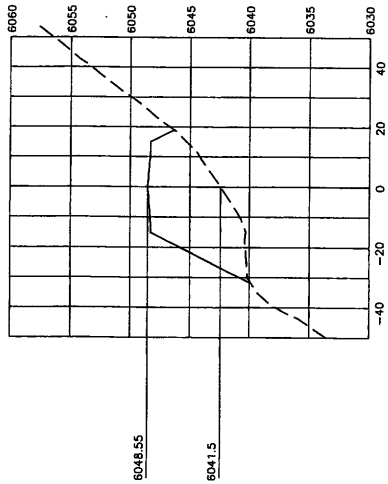
6047.36  
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EXISTING GRADE

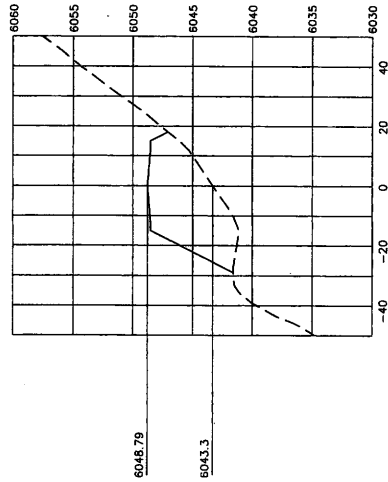
FINISHED GRADE



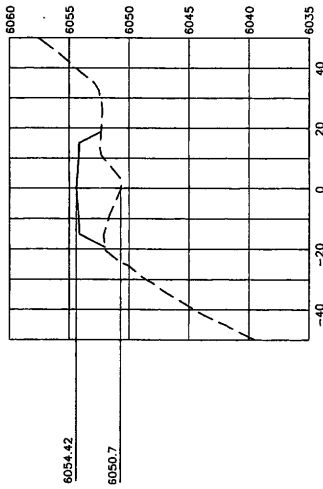




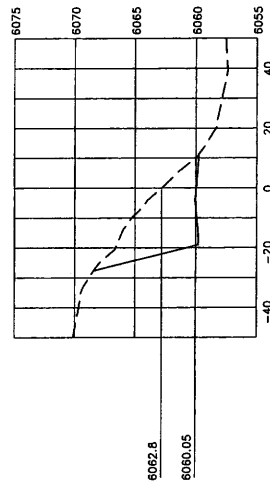
STATION 18+97.89



STATION 19+00



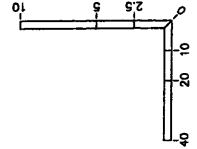
STATION 19.50



STATION 20+00

FOR BID ONLY  
NOT FOR CONSTRUCTION

EXISTING GRADE  
FINISHED GRADE



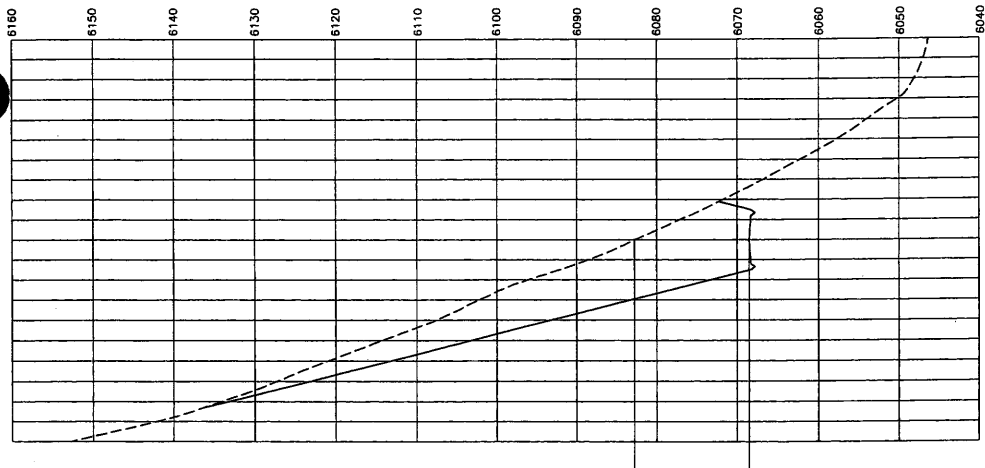
SCALE 1"=20'  
PROJECT NO. 2006022  
SHEET NO. 06022-C-111B.dwg  
11 OF 20  
2006022-C-111-11

LILA CANYON COAL MINE  
MINE PORTAL ROAD  
CROSS SECTIONS  
PRICE, UTAH

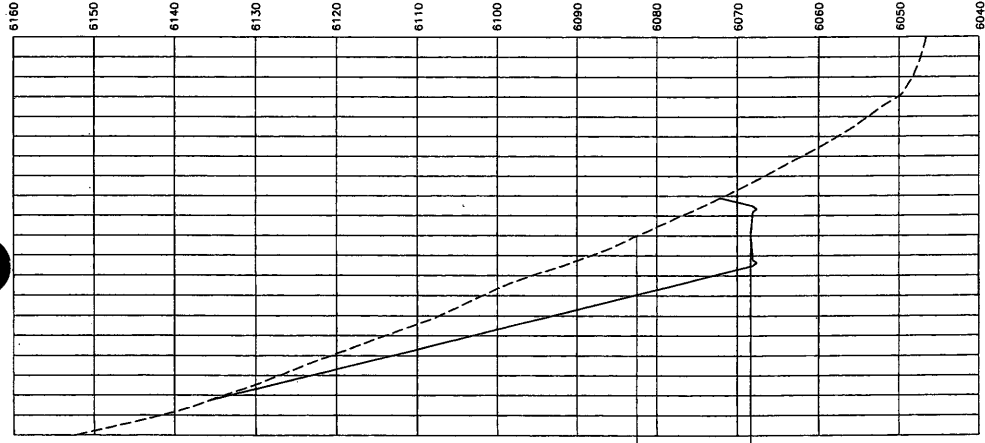
PRECISION SYSTEMS  
ENGINEERS  
8845 South 800 West  
Sandy, Utah 84070 USA

DATE	BY	CHKD	APPD	REVISION
12/19/07	WJ	WJ	WJ	1
12/19/07	WJ	WJ	WJ	2
12/19/07	WJ	WJ	WJ	3
12/19/07	WJ	WJ	WJ	4
12/19/07	WJ	WJ	WJ	5
12/19/07	WJ	WJ	WJ	6
12/19/07	WJ	WJ	WJ	7
12/19/07	WJ	WJ	WJ	8
12/19/07	WJ	WJ	WJ	9
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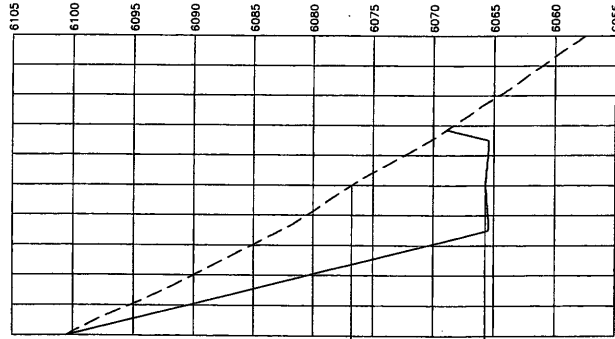
NO.	BY	CHKD	APPD	DATE	REVISION
1	WJ	WJ	WJ	12/19/07	1
2	WJ	WJ	WJ	12/19/07	2
3	WJ	WJ	WJ	12/19/07	3
4	WJ	WJ	WJ	12/19/07	4
5	WJ	WJ	WJ	12/19/07	5
6	WJ	WJ	WJ	12/19/07	6
7	WJ	WJ	WJ	12/19/07	7
8	WJ	WJ	WJ	12/19/07	8
9	WJ	WJ	WJ	12/19/07	9
10	WJ	WJ	WJ	12/19/07	10



STATION 20+75



STATION 20+73.47



STATION 20+50

EXISTING GRADE

FINISHED GRADE

FOR BID ONLY  
NOT FOR CONSTRUCTION

SCALE 1"=20' & 1"=30'  
DRAWN BY 06022  
CHECKED BY 06022-C-111B.dwg  
DATE 11-07-07  
PROJECT NO. 2006022-C-111-12(A)

LILA CANYON COAL MINE  
MINE PORTAL ROAD  
CROSS SECTIONS  
PRICE, UTAH

PRECISION SYSTEMS  
ENGINEERING, INC.  
8905 South 500 West  
Sandy, Utah 84070 USA

REVISIONS

REVISIONS

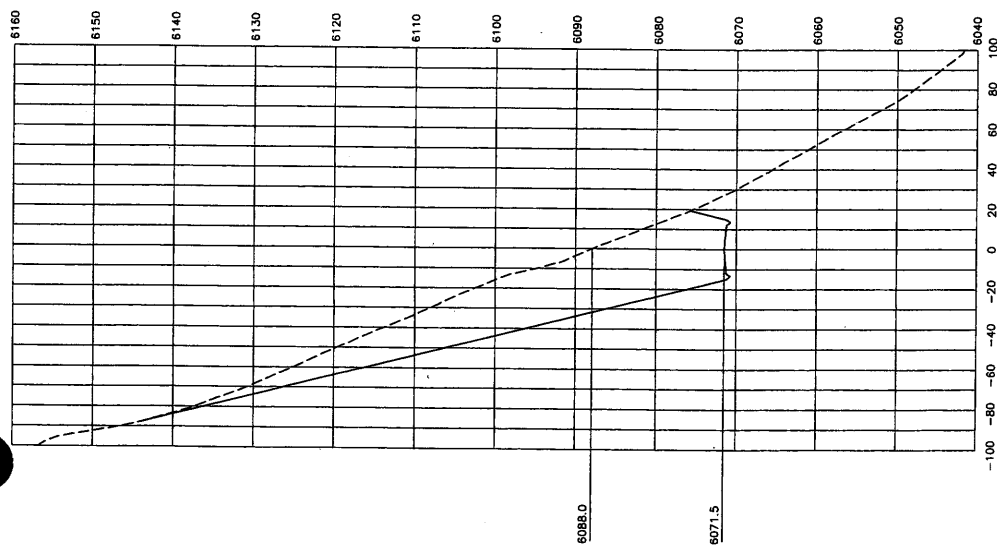
REVISIONS

REVISIONS

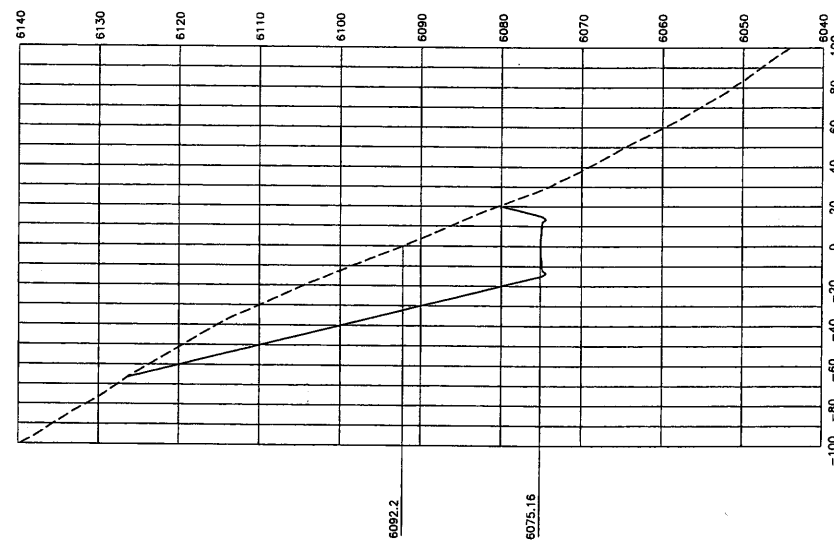
REVISIONS

REVISIONS

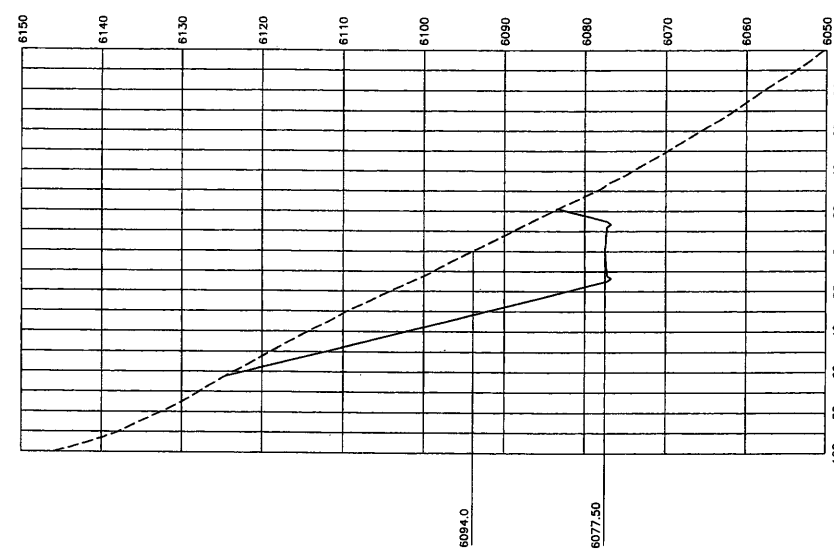
REVISIONS



STATION 21+00



STATION 21+30.44

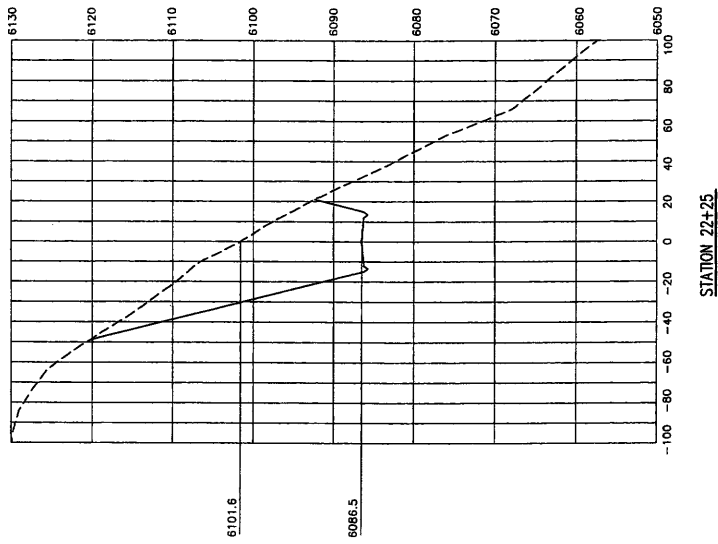
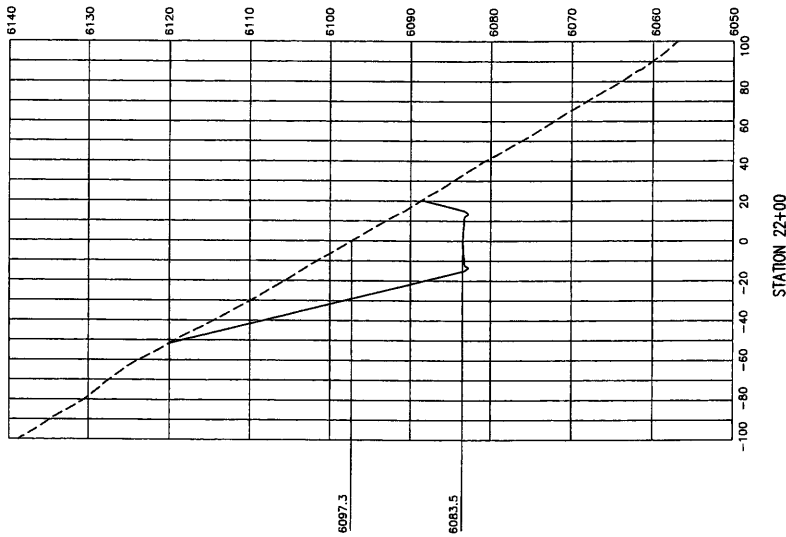
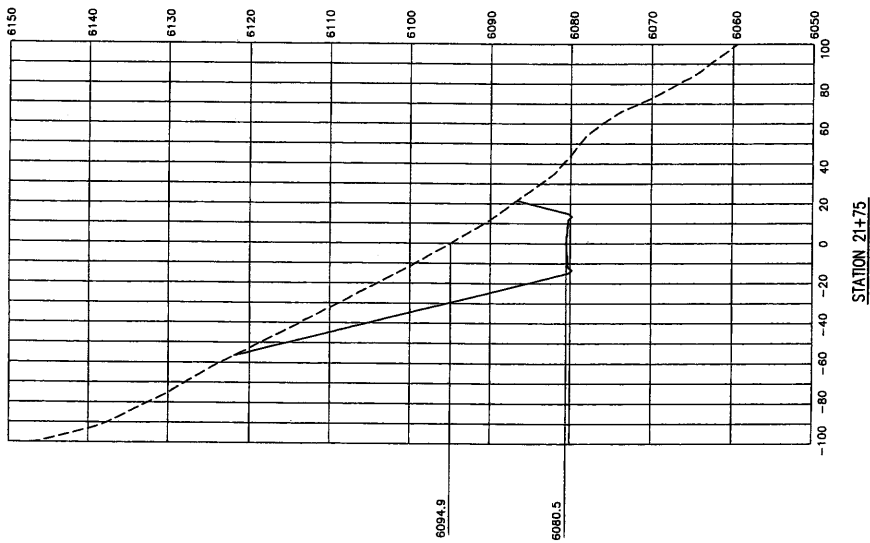


STATION 21+50

EXISTING GRADE  
FINISHED GRADE

FOR BID ONLY  
NOT FOR CONSTRUCTION

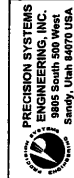
PRECISION SYSTEMS ENGINEERING, INC. 9805 South 500 West Sandy, Utah 84070 USA		LILA CANYON COAL MINE MINE PORTAL ROAD CROSS SECTIONS PRICE: UTAH		SCALE: 1"=30' PROJECT NO: 2006022 DWG NO: 06022-C-1118.dwg 13 OF 20 2006022-C-111-13	
DATE	BY	CHKD	APPD	DATE	BY
11-30-07	J. A.	J. A.	J. A.	11-30-07	J. A.
DESIGNED BY		CHECKED BY		DATE	
J. A.		J. A.		11-30-07	
PROJECT NO		PROJECT NO		DATE	
2006022		2006022		11-30-07	
DWG NO		DWG NO		DATE	
06022-C-1118		06022-C-1118		11-30-07	
PROJECT NAME		PROJECT NAME		DATE	
LILA CANYON COAL MINE		LILA CANYON COAL MINE		11-30-07	
MINE PORTAL ROAD		MINE PORTAL ROAD		DATE	
CROSS SECTIONS		CROSS SECTIONS		11-30-07	
PRICE: UTAH		PRICE: UTAH		DATE	
11-30-07		11-30-07		11-30-07	



EXISTING GRADE

FINISHED GRADE

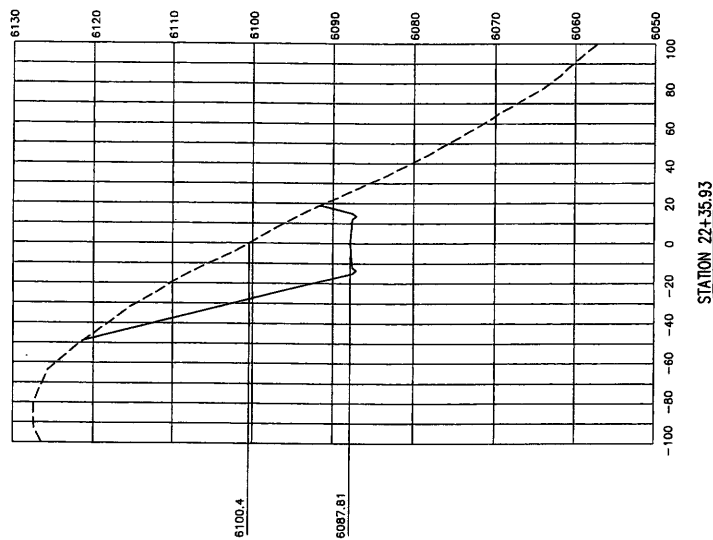
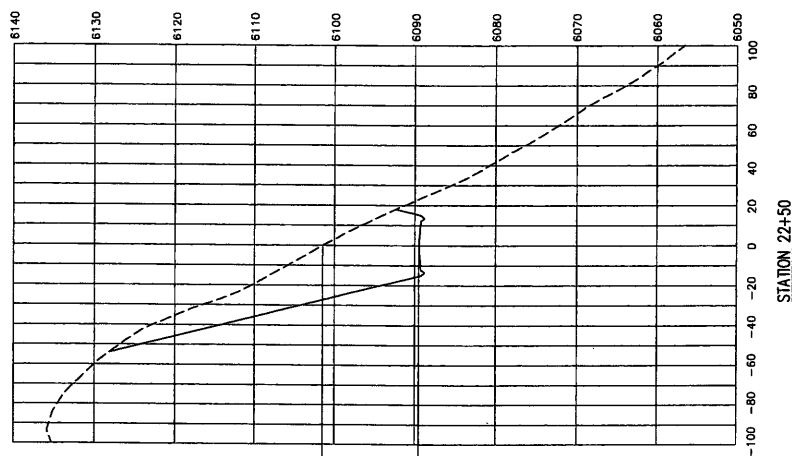
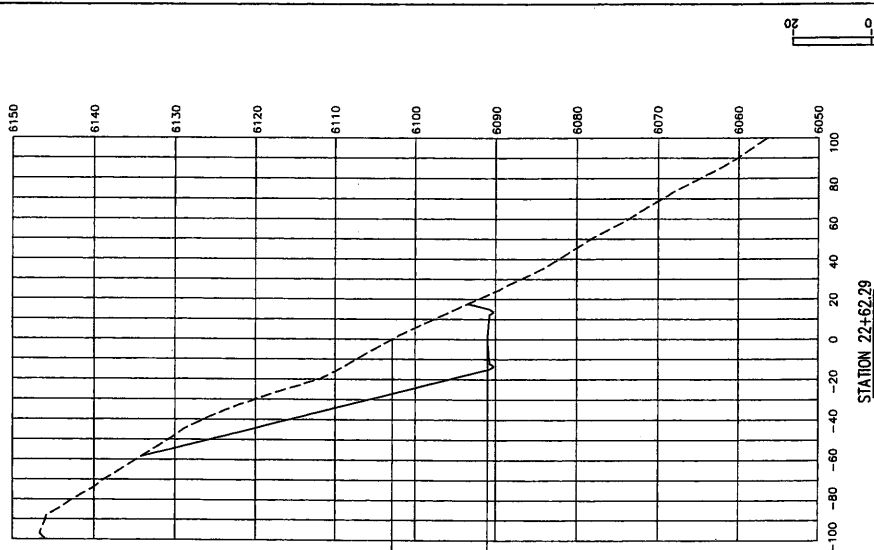
FOR BID ONLY  
NOT FOR CONSTRUCTION



PRECISION SYSTEMS  
ENGINEERING, INC.  
Sandy, Utah 84070 USA

LILA CANYON COAL MINE  
MINE PORTAL ROAD  
CROSS SECTIONS  
PRICE: UT-14

SCALE 1"=30'  
PROJECT NO. 2006022  
CADD NO. 06022-C-111B.dwg  
14 OF 20  
2006022-C-111-14A

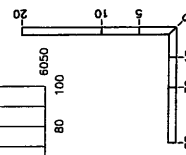


EXISTING GRADE \_\_\_\_\_

FINISHED GRADE \_\_\_\_\_

**FOR BID ONLY**  
**NOT FOR CONSTRUCTION**

 <b>PRECISION SYSTEMS ENGINEERING, INC.</b> 3800 Sandy 500 West Sandy, Utah 84070 USA										<b>LILA CANYON COAL MINE</b> <b>MINE PORTAL ROAD</b> <b>CROSS SECTIONS</b> PRICE: JT/AN									
DRAWN: <b>WHL</b> DATE: <b>12/11/09</b> CHECKED: <b>GL</b> DATE: <b>11-25-09</b> PROJECT ENG: <b>GL</b> DATE: <b>11-25-09</b> PROJECT MGR: <b>CS</b> DATE: <b>11-25-09</b> DPC MANAGER: <b>CS</b> DATE: <b>11-25-09</b> DATE: <b>11-25-09</b> TIME: <b>11:11 AM</b> BY: <b>JPM</b> WRT: <b>GL</b> DATE: <b>11-25-09</b> TIME: <b>11:11 AM</b> BY: <b>JPM</b> REVISIONS: <b>REVISIONS</b>										SCALE: <b>1"=30'</b> PROJECT NO: <b>20080022</b> C&D NO: <b>06022-C-111B.dwg</b> 15 OF 20 <b>20080022-C-111-15</b>									
DATE: <b>11-25-09</b> TIME: <b>11:11 AM</b> BY: <b>JPM</b> WRT: <b>GL</b> DATE: <b>11-25-09</b> TIME: <b>11:11 AM</b> BY: <b>JPM</b> REVISIONS: <b>REVISIONS</b>										SCALE: <b>1"=30'</b> PROJECT NO: <b>20080022</b> C&D NO: <b>06022-C-111B.dwg</b> 15 OF 20 <b>20080022-C-111-15</b>									



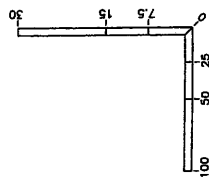
**STATION 23+00**



**STATION 23+00**



STATION 23+05.05



EXISTING GRADE

**FINISHED GRADE**

**FOR BID ONLY**  
**NOT FOR CONSTRUCTION**

**LILA CANYON COAL MINE  
MINE PORTAL ROAD  
CROSS SECTIONS  
PRICE, UTAH**

**PRECISION SYSTEMS  
ENGINEERING, INC.**  
9805 South 500 West  
Sandy, Utah 84070 USA

DRAWN	WAH	10/18/07
CHECKED	GL	11-20-07
PROJECT ENG	Q	11-20-07
PROJECT MGR	CS	11-20-07
ENG. MANAGER	CS	11-20-07
DESIGN MGR	CS	11-20-07

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[illegible]

EXPOSURE

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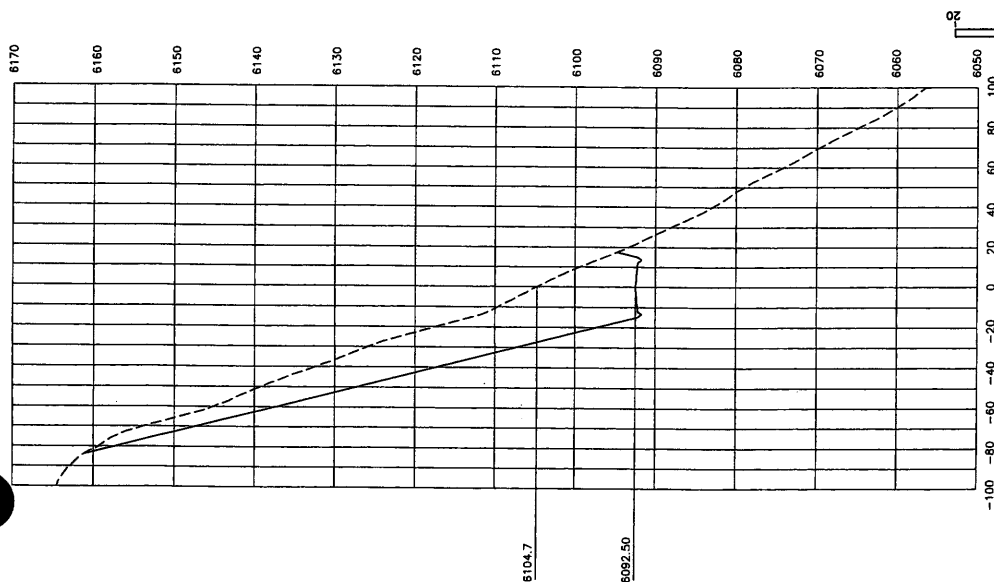
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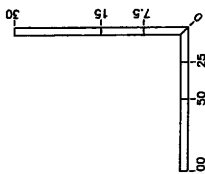
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Nov 30, 2007





STATION 22+75



EXISTING GRADE \_\_\_\_\_

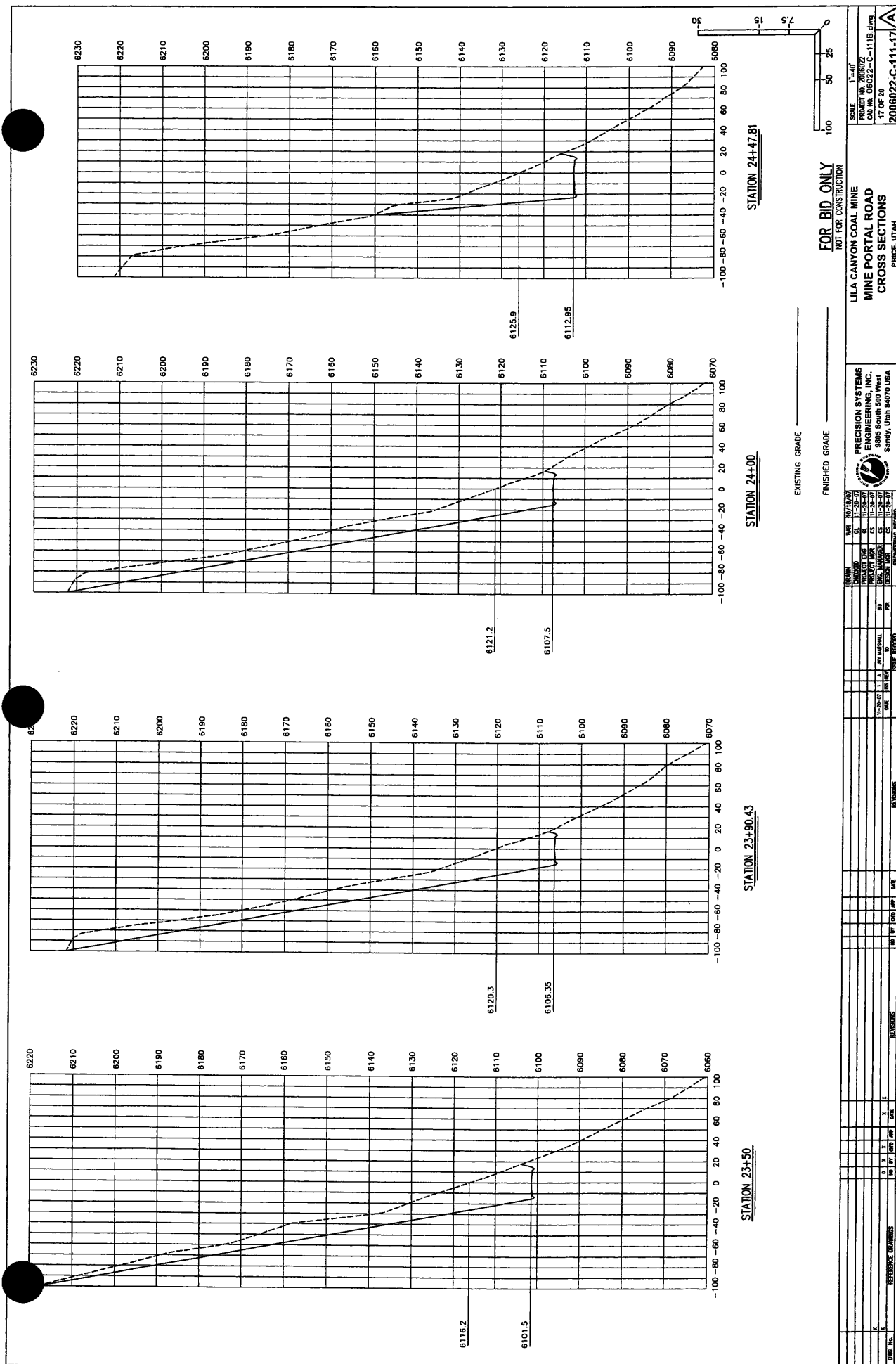
FINISHED GRADE \_\_\_\_\_

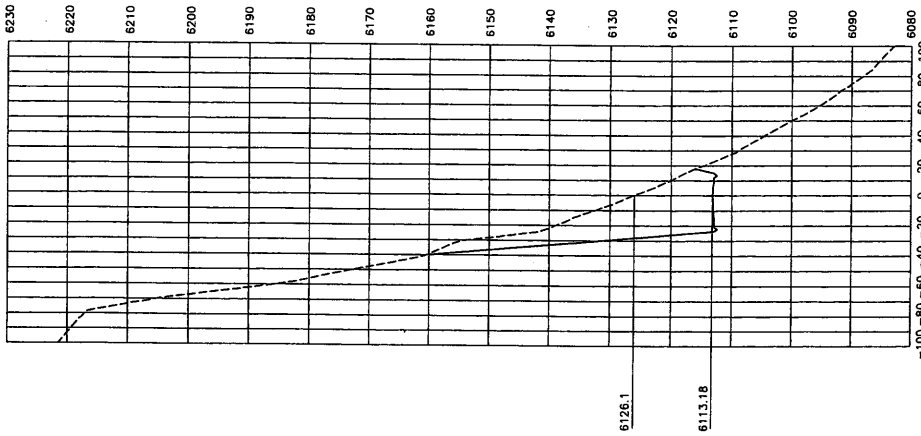
**FOR BID ONLY**  
**NOT FOR CONSTRUCTION**

**FOR BID ONLY**  
**NOT FOR CONSTRUCTION**

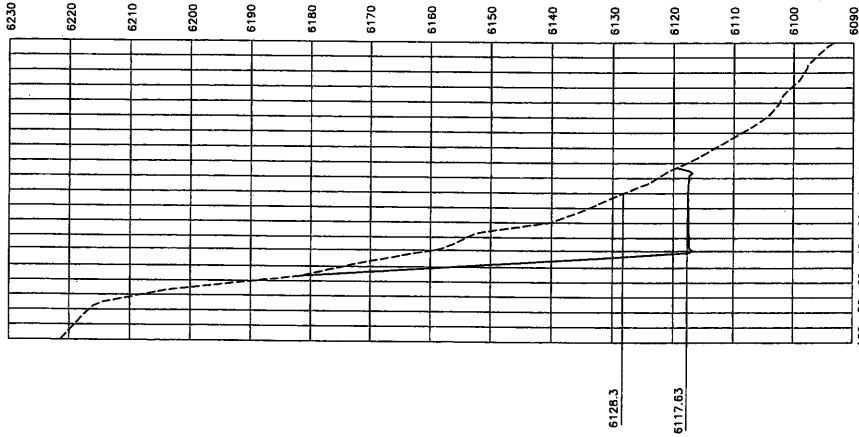
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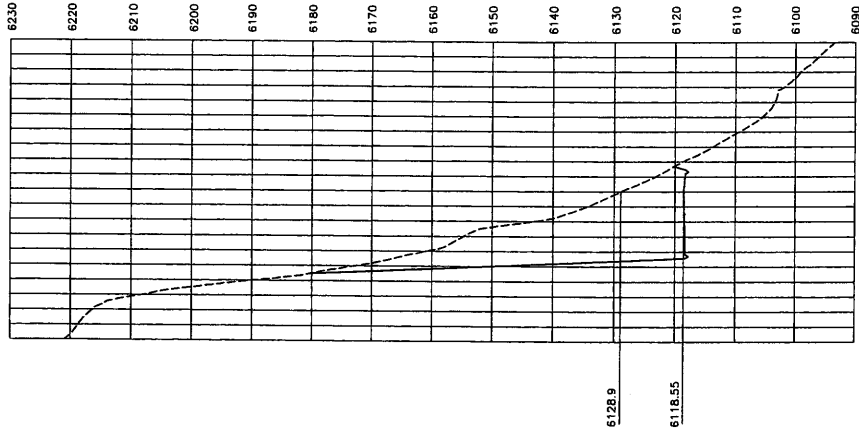




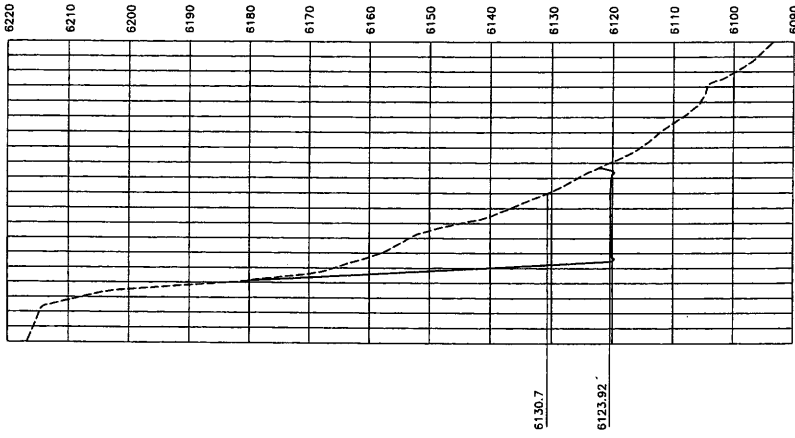
STATION 24+50



STATION 24+91.45



STATION 25+00

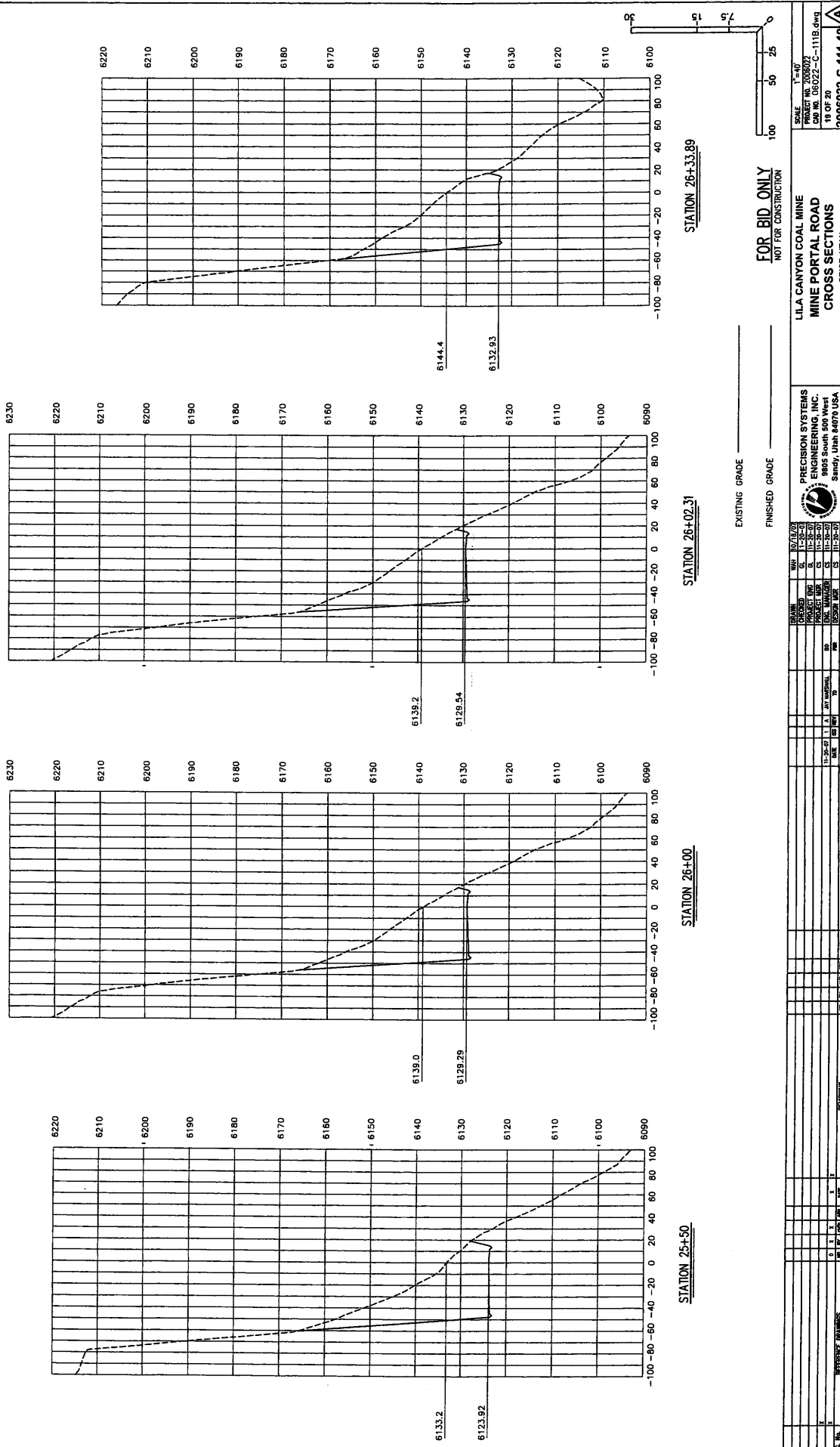


STATION 25+17.06

EXISTING GRADE  
FINISHED GRADE

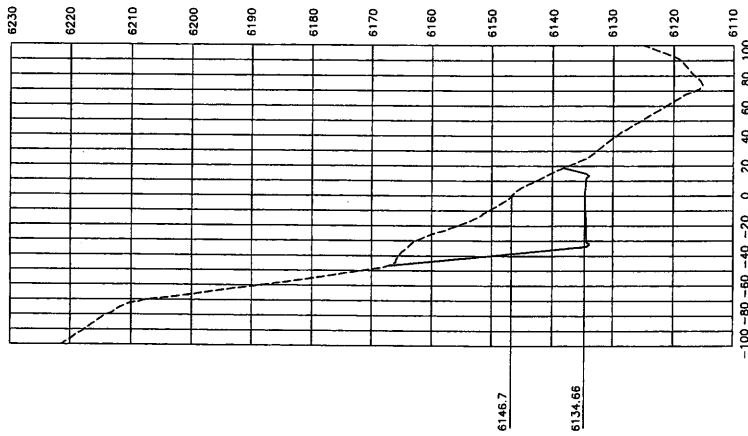
FOR BID ONLY  
NOT FOR CONSTRUCTION

SCALE: 1"=40' DRAWN BY: J. L. LACA CHECKED BY: J. L. LACA DATE: 06/22/06 18 OF 20 2006022-C-111B.dwg		LILA CANYON COAL MINE MINE PORTAL ROAD CROSS SECTIONS PRICE, UTAH	
PRECISION SYSTEMS ENGINEERING, INC. 9805 South 500 West Sandy, Utah 84079 USA		REVISIONS NO. BY DATE APP. DATE 1 J. L. LACA 06/22/06 2 J. L. LACA 06/22/06 3 J. L. LACA 06/22/06 4 J. L. LACA 06/22/06 5 J. L. LACA 06/22/06 6 J. L. LACA 06/22/06 7 J. L. LACA 06/22/06 8 J. L. LACA 06/22/06 9 J. L. LACA 06/22/06 10 J. L. LACA 06/22/06	

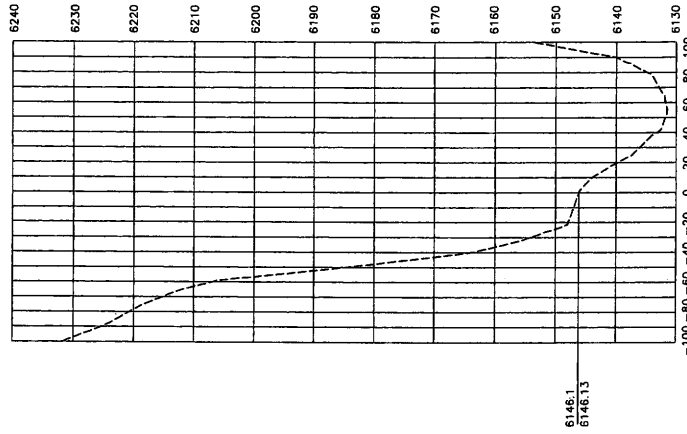


FOR BID ONLY  
NOT FOR CONSTRUCTION

PRECISION SYSTEMS ENGINEERING, INC. 9805 South 500 West Sandy, Utah 84070 USA		LILA CANYON COAL MINE MINE PORTAL ROAD CROSS SECTIONS PRICE, UTAH	
DATE	11/30/07	SCALE	1"=40'
PROJECT	06022-C-111B	CAD FILE	06022-C-111B.dwg
DESIGNER	PRECISION SYSTEMS ENGINEERING, INC.	DATE	11/30/07
CHECKED	PRECISION SYSTEMS ENGINEERING, INC.	DATE	11/30/07
APPROVED	PRECISION SYSTEMS ENGINEERING, INC.	DATE	11/30/07
REVISIONS			
NO.	1	DESCRIPTION	REVISIONS
1	1	1	1
2	2	2	2
3	3	3	3
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STATION 26+50



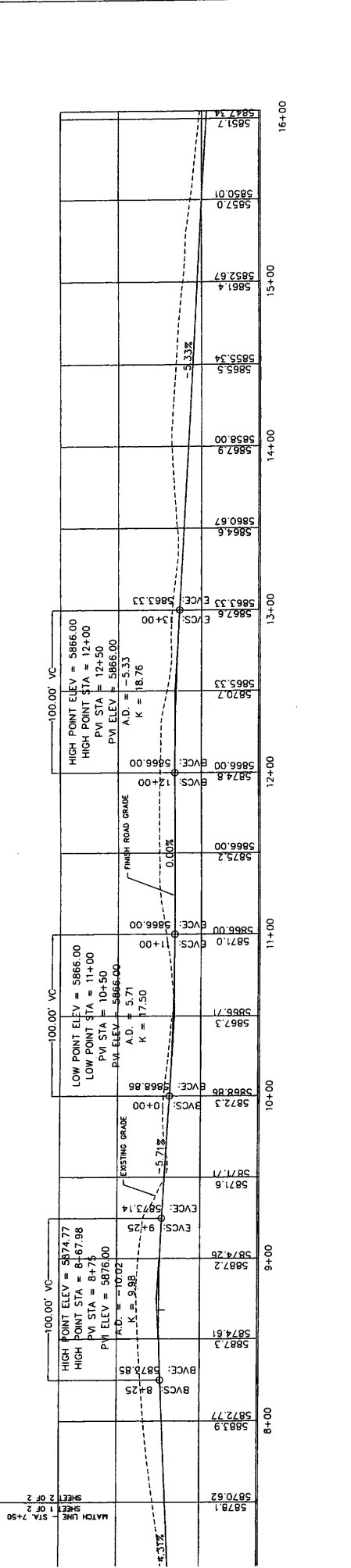
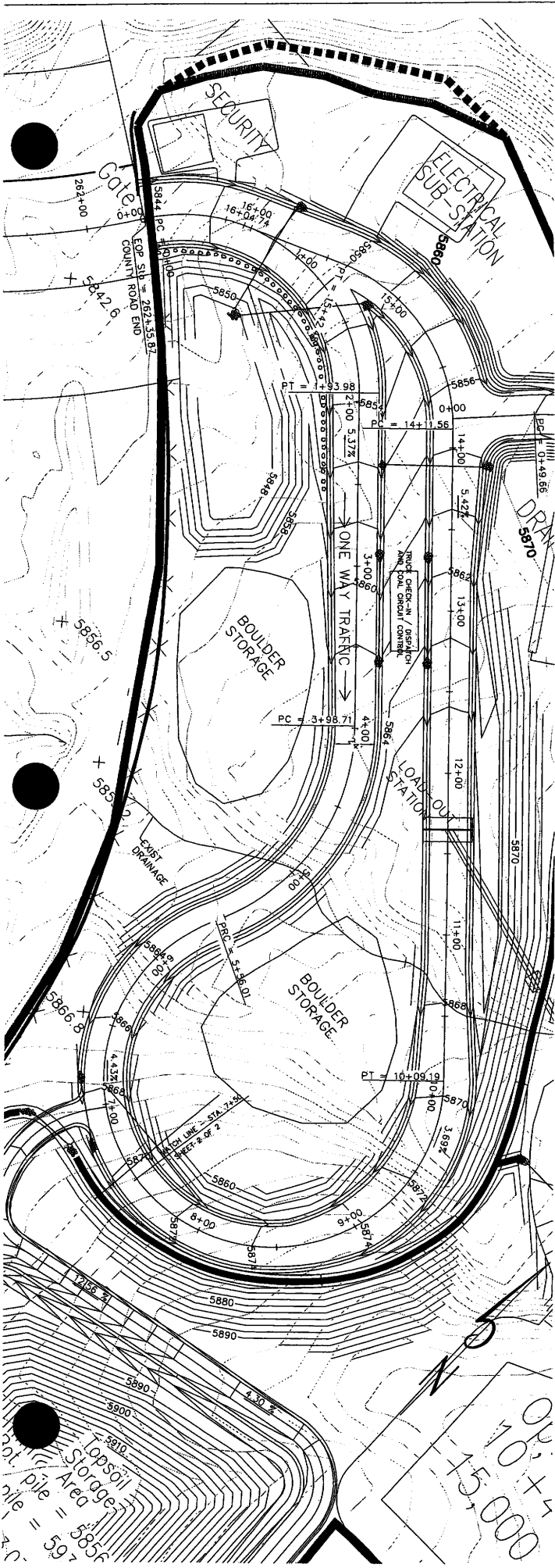
STATION 26+81.18

EXISTING GRADE  
FINISHED GRADE

FOR BID ONLY  
NOT FOR CONSTRUCTION

PRECISION SYSTEMS ENGINEERING, INC. 8805 South 500 West Sandy, Utah 84070 USA										LILA CANYON COAL MINE MINE PORTAL ROAD CROSS SECTIONS PRICE, UTAH										SCALE 1"=40' PROJECT NO. 200602 DWG NO. 06022-C-111B.dwg 20 OF 20 2006022-C-111-20/A									
																													
DATE										DATE										DATE									
PROJECT NO.										PROJECT NO.										PROJECT NO.									
DWG NO.										DWG NO.										DWG NO.									
20 OF 20										20 OF 20										20 OF 20									
2006022-C-111-20/A										2006022-C-111-20/A										2006022-C-111-20/A									
DATE										DATE										DATE									
PROJECT NO.										PROJECT NO.										PROJECT NO.									
DWG NO.										DWG NO.										DWG NO.									
20 OF 20										20 OF 20										20 OF 20									
2006022-C-111-20/A										2006022-C-111-20/A										2006022-C-111-20/A									





**FOR BID ONLY**  
NOT FOR CONSTRUCTION

SCALE: 1" = 30'

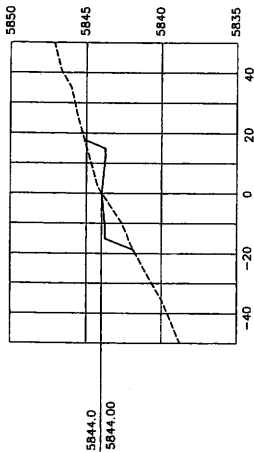
PROJECT NO. 2006022  
CADD NO. 2006022-1.100.dwg  
2 OF 2

**LILA CANYON COAL MINE TRUCK LOADOUT ROAD PLAN AND PROFILE**  
PRICE: UTAH

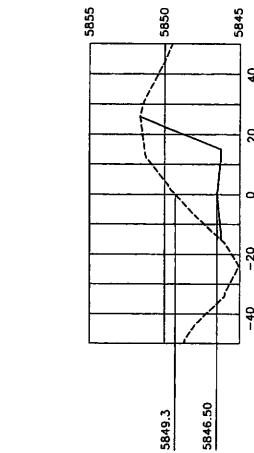
**PRECISION SYSTEMS ENGINEERING, INC.**  
9805 South 500 West  
Sandy, Utah 84070 USA

DATE	BY	CHK	APP	REV	REVISIONS
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11-20-07	J.A.	J.A.	J.A.	2	ISSUE RECORD

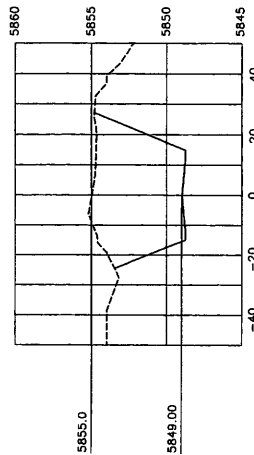
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11-20-07	J.A.	J.A.	J.A.	1	ISSUE RECORD
11-20-07	J.A.	J.A.	J.A.	2	ISSUE RECORD



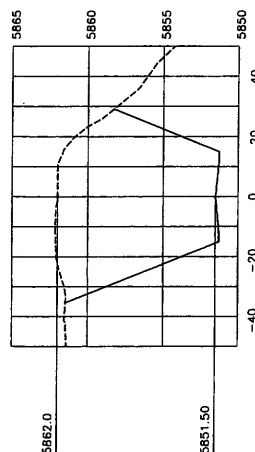
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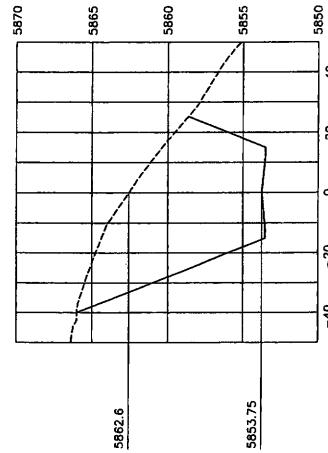
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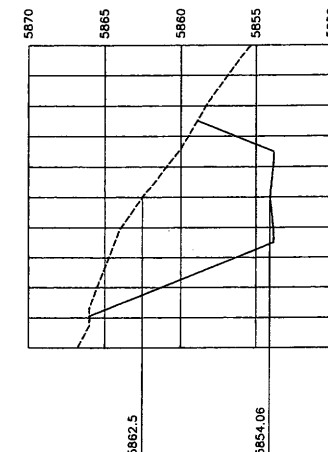
STATION 1+00



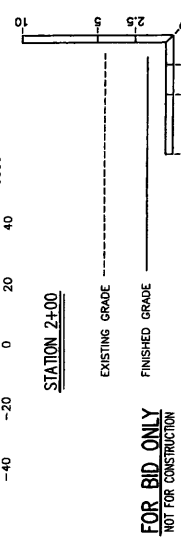
STATION 1+50



STATION 1+93.98



STATION 2+00

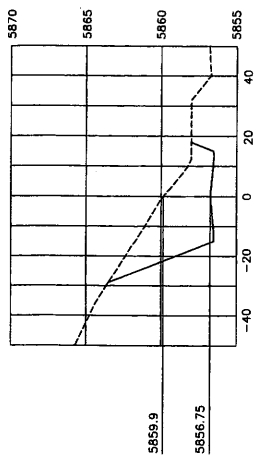


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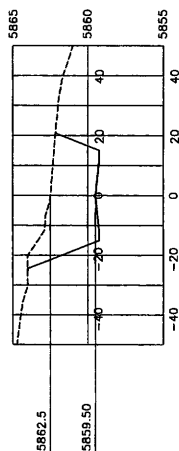
PRECISION SYSTEMS  
ENGINEERING, INC.  
8885 South 500 West  
Sandy, Utah 84070 USA

LILA CANYON COAL MINE  
TRUCK LOADOUT ROAD  
CROSS SECTIONS  
PRICE, UTAH

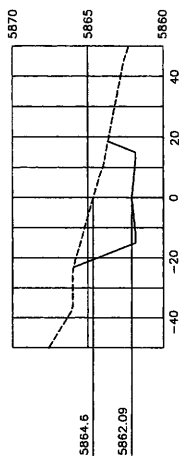
SCALE: 1" = 20'  
SHEET NO. 2006022  
JOB NO. 06022-C-121.dwg  
1 OF 7  
2006022-C-121-01



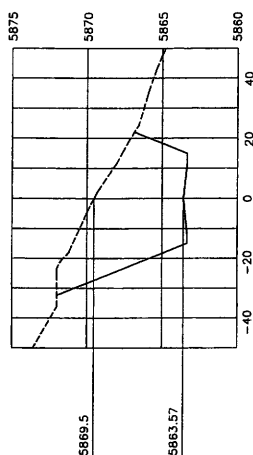
STATION 2+50



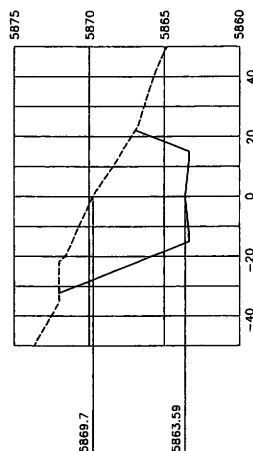
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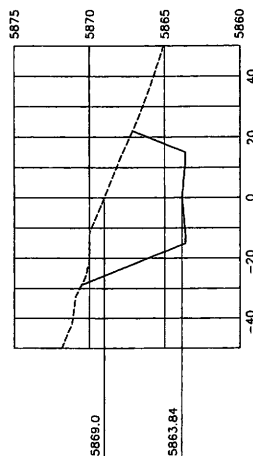
STATION 3+50



STATION 3+98.71



STATION 4+00

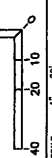


STATION 4+50

EXISTING GRADE

FINISHED GRADE

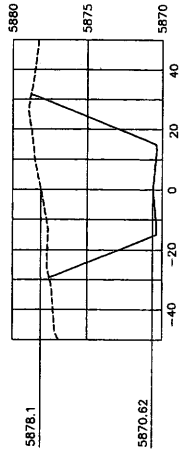
**FOR BID ONLY**  
**NOT FOR CONSTRUCTION**

[illegible]

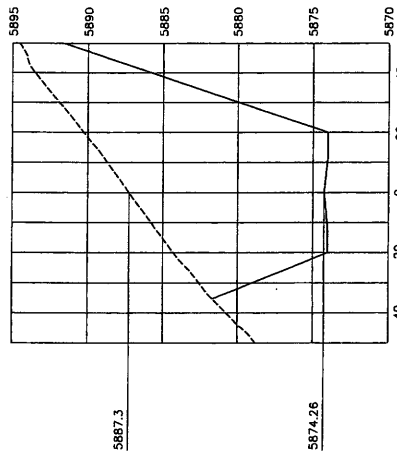




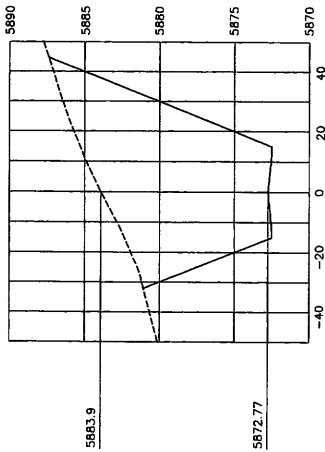
EXISTING GRADE  
FINISHED GRADE



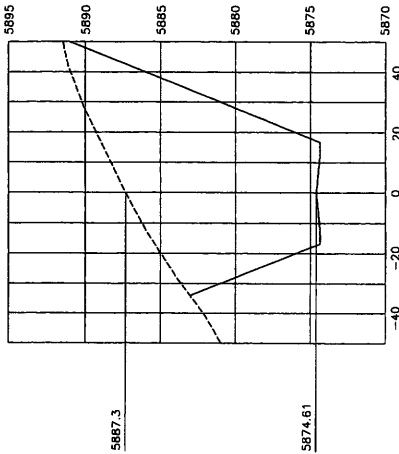
STATION 7+50



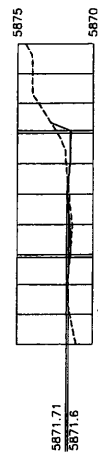
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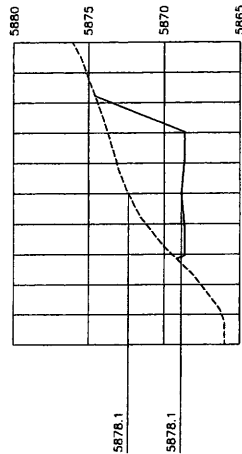
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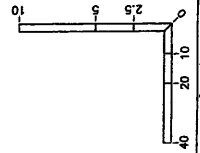
STATION 9+00



STATION 9+50



STATION 10+00



SCALE: 1" = 20'  
DATE: 11/30/07  
DRAWN BY: J. WILSON  
CHECKED BY: J. WILSON  
CADD NO. 06022-C-121.dwg  
4 OF 7  
2006022-C-121-04

LILA CANYON COAL MINE  
TRUCK LOADOUT ROAD  
CROSS SECTIONS  
PRICE: UTAN

PRECISION SYSTEMS  
ENGINEERING, INC.  
8805 South 500 West  
Sandy, Utah 84070 USA

NO.	DATE	BY	CHKD.	REVISION
1	11-30-07	JW	JW	ISSUE RECORD

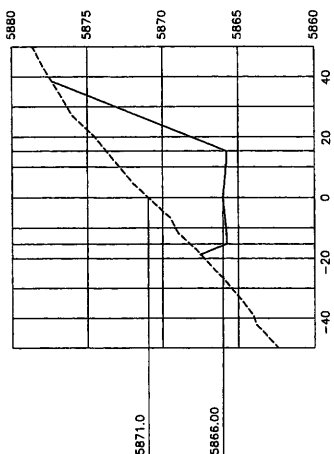
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1	11-30-07	JW	JW	ISSUE RECORD

NO.	DATE	BY	CHKD.	REVISION
1	11-30-07	JW	JW	ISSUE RECORD

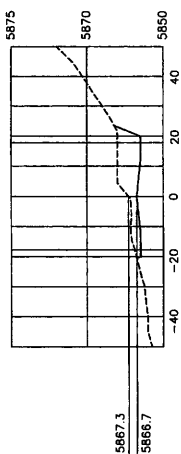
NO.	DATE	BY	CHKD.	REVISION
1	11-30-07	JW	JW	ISSUE RECORD

NO.	DATE	BY	CHKD.	REVISION
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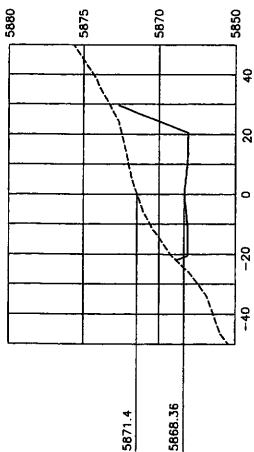
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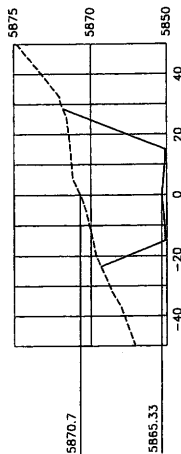
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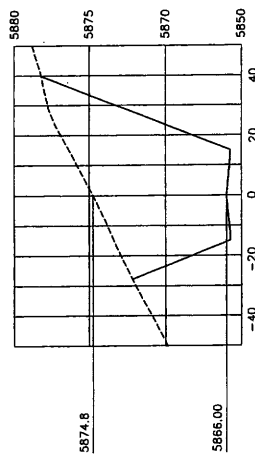
STATION 10+50



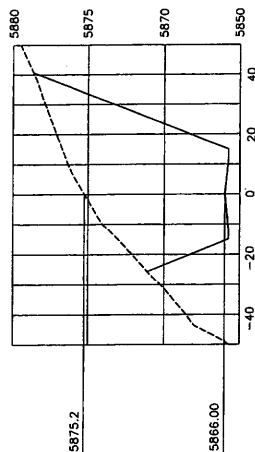
STATION 10+09.19



STATION 12+50



STATION 12+50

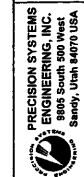


STATION 11+50

FOR BID ONLY  
NOT FOR CONSTRUCTION

EXISTING GRADE

FINISHED GRADE



PRECISION SYSTEMS  
ENGINEERING, INC.  
8905 South 900 West  
Sandy, Utah 84079 USA

DATE	11/22/07
DESIGNED BY	CS
CHECKED BY	CS
PROJECT MAN	CS
DATE MANAGER	CS
DATE REVIEWER	CS
DATE APPROVER	CS

DATE	11/22/07
DESIGNED BY	CS
CHECKED BY	CS
PROJECT MAN	CS
DATE MANAGER	CS
DATE REVIEWER	CS
DATE APPROVER	CS

DATE	11/22/07
DESIGNED BY	CS
CHECKED BY	CS
PROJECT MAN	CS
DATE MANAGER	CS
DATE REVIEWER	CS
DATE APPROVER	CS

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CHECKED BY	CS
PROJECT MAN	CS
DATE MANAGER	CS
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DATE APPROVER	CS

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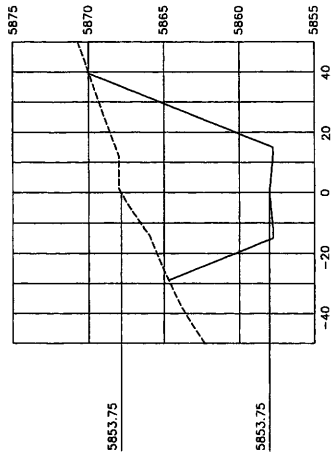
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CHECKED BY	CS
PROJECT MAN	CS
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DATE REVIEWER	CS
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CHECKED BY	CS
PROJECT MAN	CS
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DATE REVIEWER	CS
DATE APPROVER	CS

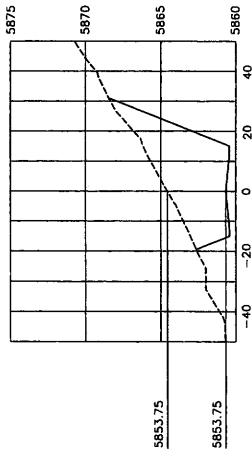
PROJECT NO. 2006022  
DATE NO. 06022-C-121.dwg  
5 OF 7

LILA CANYON COAL MINE  
TRUCK LOADOUT ROAD  
CROSS SECTIONS  
PRICE: UTAH

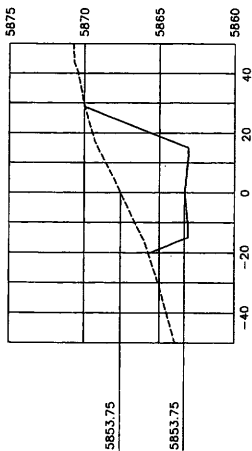
SCALE 1" = 20'  
PROJECT NO. 2006022  
DATE NO. 06022-C-121.dwg  
5 OF 7  
2006022-C-121-05/A



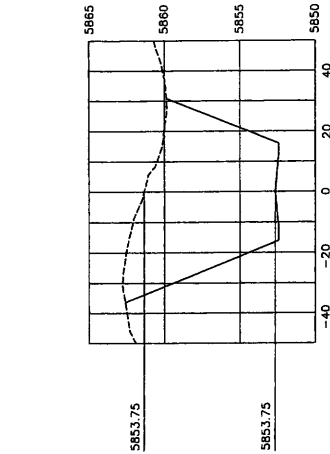
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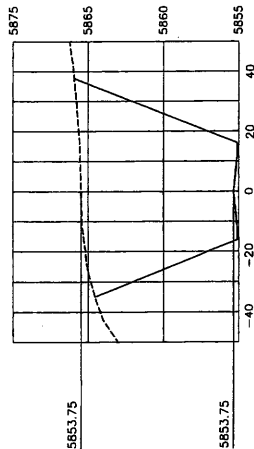
STATION 13+50



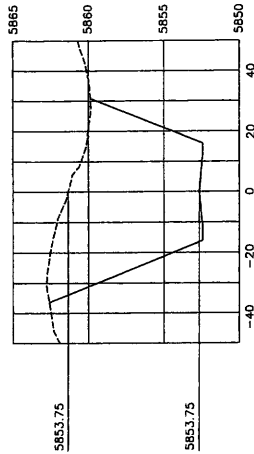
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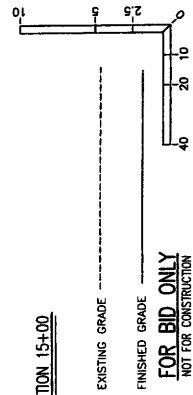
STATION 14+11.56



STATION 14+50



STATION 15+00



FOR BID ONLY  
NOT FOR CONSTRUCTION

SCALE 1" = 20'  
PROJECT NO. 2006022  
JOB NO. 06022-C-121.dwg  
6 OF 7  
2006022-C-121-06

LILA CANYON COAL MINE  
TRUCK LOADOUT ROAD  
CROSS SECTIONS  
PRICE, UTAH

PRECISION SYSTEMS  
ENGINEERING, INC.  
880 South 500 West  
Sandy, Utah 84070 USA

DATE	BY	CHKD	APPD
11-29-07	11.8	11.8	11.8
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11-29-07	11.8	11.8	11.8

DATE	BY	CHKD	APPD
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11-29-07	11.8	11.8	11.8

DATE	BY	CHKD	APPD
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DATE	BY	CHKD	APPD
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DATE	BY	CHKD	APPD
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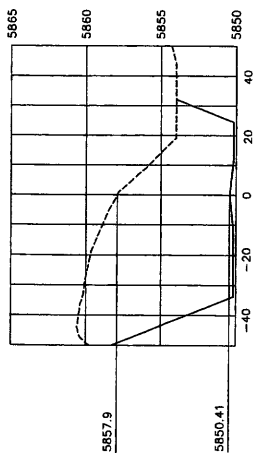
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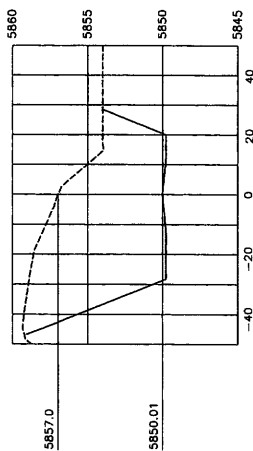
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11-29-07	11.8	11.8	11.8

DATE	BY	CHKD	APPD
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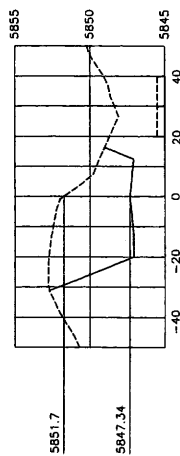
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11-29-07	11.8	11.8	11.8



STATION 15+42.48



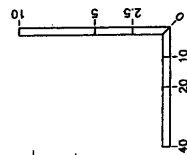
STATION 15+50



STATION 16+00

**EXISTING GRADE**

**FINISHED GRADE**

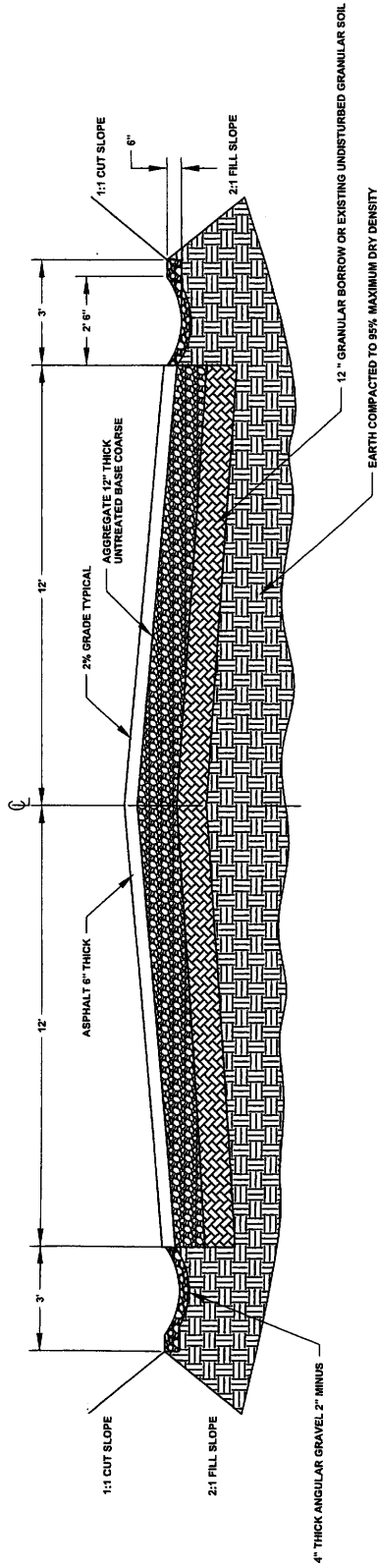


**FOR BID ONLY**  
**NOT FOR CONSTRUCTION**

<p>PRECISION SYSTEMS ENGINEERING, INC. 8000 South 2600 West Salt Lake City, Utah 84119 USA</p>										<p>LILA CANYON COAL MINE TRUCK LOADOUT ROAD CROSS SECTIONS PRICE, UTAH</p>									
<p>DATE: 11-25-91 PROJECT: MNR SHEET: 1 OF 7 SCALE: 1" = 20'</p>										<p>DATE: 11-25-91 PROJECT: MNR SHEET: 1 OF 7 SCALE: 1" = 20'</p>									
<p>REVISIONS</p>										<p>REVISIONS</p>									
<p>NO. DATE BY</p>										<p>NO. DATE BY</p>									
<p>1 11-25-91 J.A. MNR</p>										<p>1 11-25-91 J.A. MNR</p>									
<p>2 11-25-91 J.A. MNR</p>										<p>2 11-25-91 J.A. MNR</p>									
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# TRUCK LOADOUT ROAD

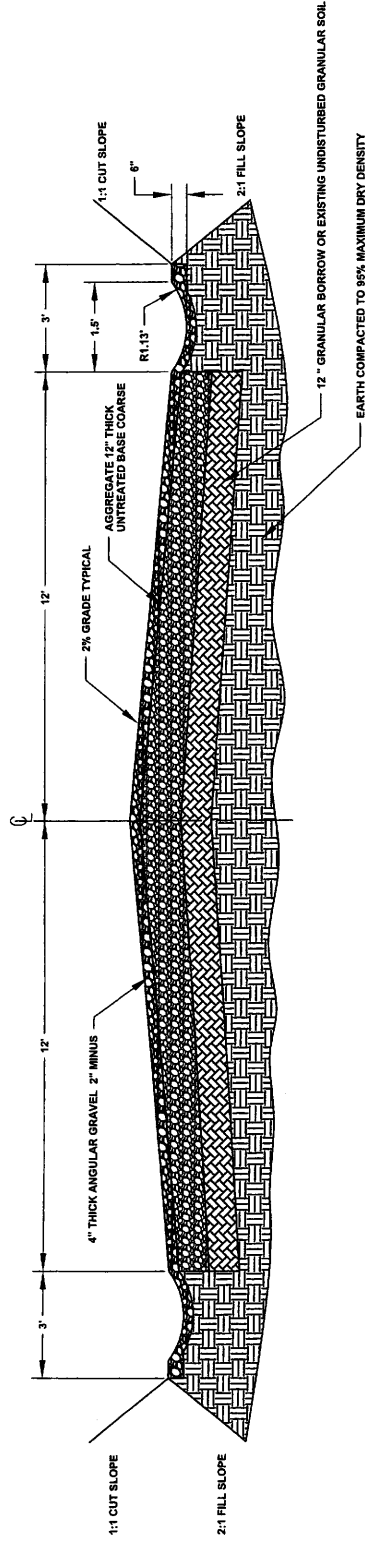
TYPICAL SECTION



\*NOTES: WIDTH VARIES FOR LOADOUT ROAD IN CURVES. SEE CROSS-SECTION AND PLAN VIEW DRAWINGS

# MINE PORTAL ROAD

TYPICAL SECTION



\*ALL FILL TO BE PLACED UNDER ROADWAY SHOULD BE COMPACTED TO 95% MAXIMUM DRY DENSITY

FOR BID ONLY  
NOT FOR CONSTRUCTION

LILA CANYON COAL MINE  
ROADWAY  
DETAILS  
PRICE, UTAH



1 OF 1

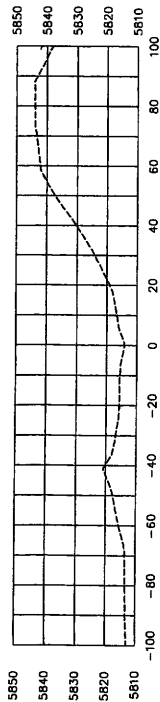
06022-C-130

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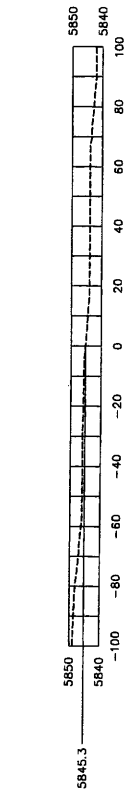




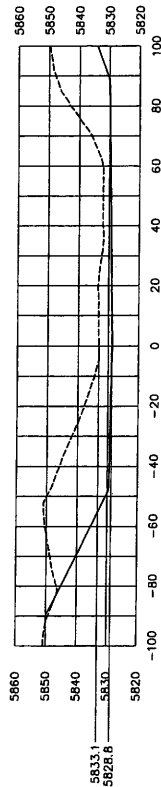




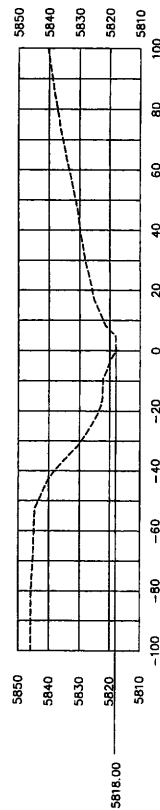
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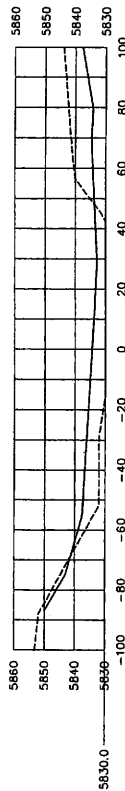
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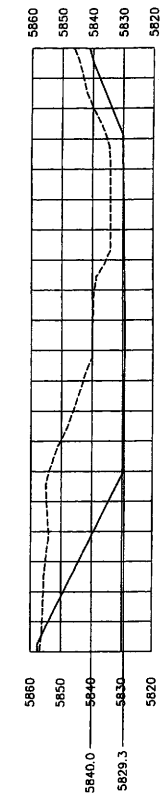
STATION 2+00



STATION 0+50



STATION 1+50



STATION 2+50

FOR BID ONLY  
NOT FOR CONSTRUCTION

EXISTING GRADE  
FINISHED GRADE

SCALE 1" = 20'  
PROJECT NO. 2006022  
CADD NO. 06022-C-211.dwg  
1 OF 3  
2006022-C-211-01/A

LILA CANYON COAL MINE  
STORM WATER DETENTION POND  
CROSS SECTIONS  
PRICE, UTAH

PRECISION SYSTEMS  
ENGINEERING, INC.  
9800 South 500 West  
Sandy, Utah 84070 USA



DATE	BY	CHKD	APPD	REVISIONS
11-30-07	J. B.	J. B.	J. B.	REV. 0000

DATE	BY	CHKD	APPD	REVISIONS
11-30-07	J. B.	J. B.	J. B.	REV. 0000

DATE	BY	CHKD	APPD	REVISIONS
11-30-07	J. B.	J. B.	J. B.	REV. 0000

DATE	BY	CHKD	APPD	REVISIONS
11-30-07	J. B.	J. B.	J. B.	REV. 0000

DATE	BY	CHKD	APPD	REVISIONS
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DATE	BY	CHKD	APPD	REVISIONS
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DATE	BY	CHKD	APPD	REVISIONS
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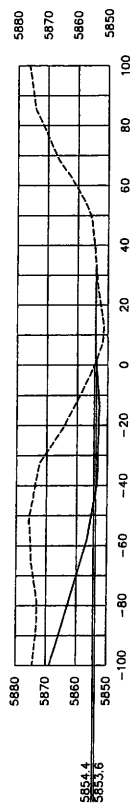
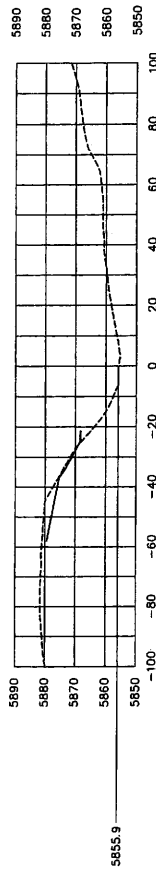
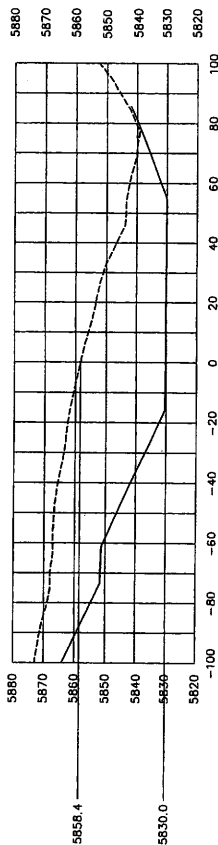
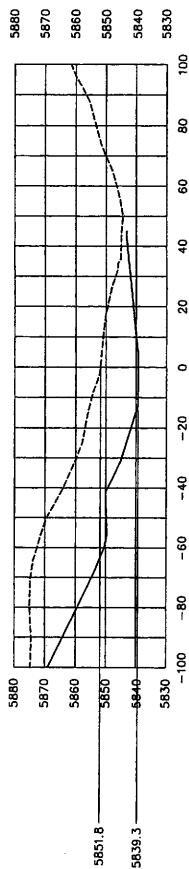
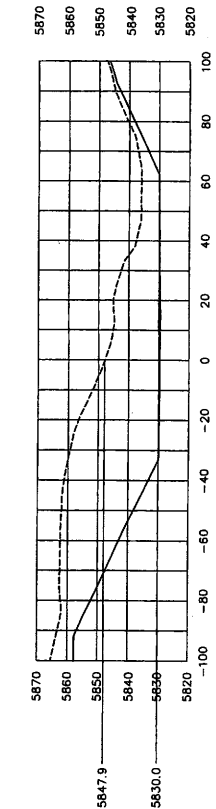
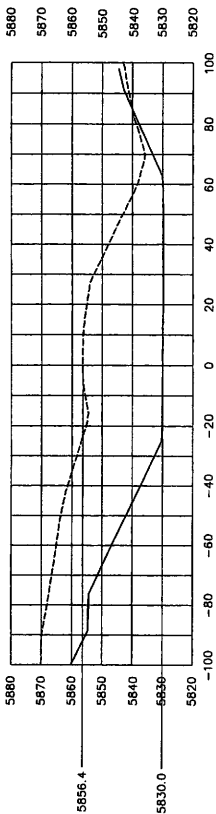
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FOR BID ONLY  
NOT FOR CONSTRUCTION

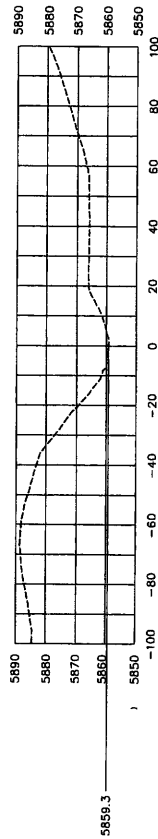


PRECISION SYSTEMS  
ENGINEERING, INC.  
3805 South 300 West  
Sandwich, Utah 84470 USA

LILA CANYON COAL MINE  
STORM WATER DETENTION POND  
CROSS SECTIONS  
PRICE, UTAH

SCALE 1" = 20'  
PROJECT NO. 2006022  
CADD NO. 06022-C-211.dwg  
2 OF 3  
06022-C-211-02

DATE	BY	CHKD	APPD	REVISION
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11-30-07	J. B.	J. B.	J. B.	3. REVISED DESIGN
11-30-07	J. B.	J. B.	J. B.	4. REVISED DESIGN
11-30-07	J. B.	J. B.	J. B.	5. REVISED DESIGN
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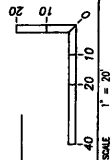


STATION 6+00

EXISTING GRADE

FINISHED GRADE

FOR BID ONLY  
NOT FOR CONSTRUCTION



DATE: 11/20/07  
DWG NO. 06022-C-211.dwg  
3 OF 3  
06022-C-211-03

LILA CANYON COAL MINE  
STORM WATER DETENTION POND  
CROSS SECTIONS  
PRICE: UTAH

PRECISION SYSTEMS  
ENGINEERING, INC.  
8965 South 500 West  
Sandy, Utah 84079 USA



DATE	BY	CHKD	APPD	REV	DESCRIPTION
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DATE	BY	CHKD	APPD	REV	DESCRIPTION
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DATE	BY	CHKD	APPD	REV	DESCRIPTION
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DATE	BY	CHKD	APPD	REV	DESCRIPTION
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DATE	BY	CHKD	APPD	REV	DESCRIPTION
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DATE	BY	CHKD	APPD	REV	DESCRIPTION
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DATE	BY	CHKD	APPD	REV	DESCRIPTION
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DATE	BY	CHKD	APPD	REV	DESCRIPTION
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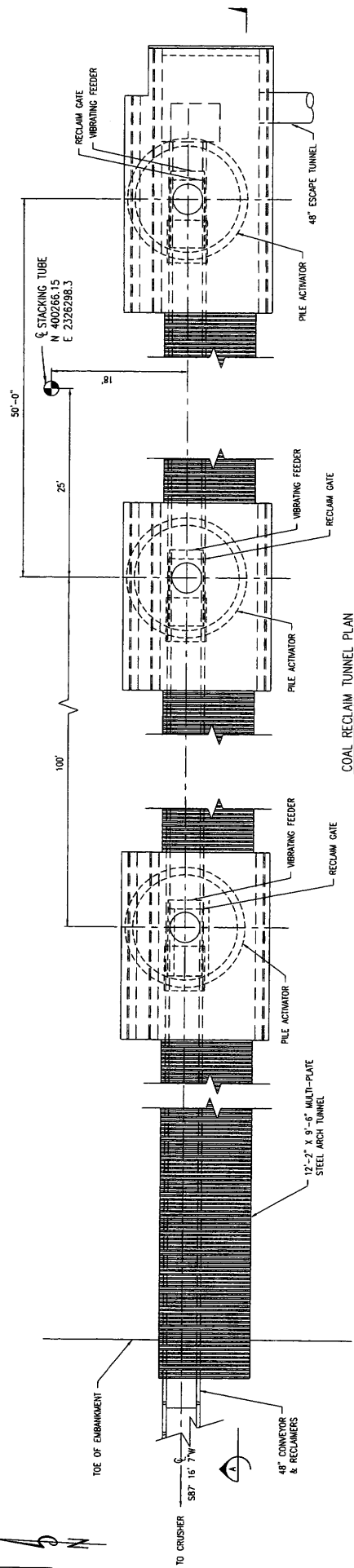
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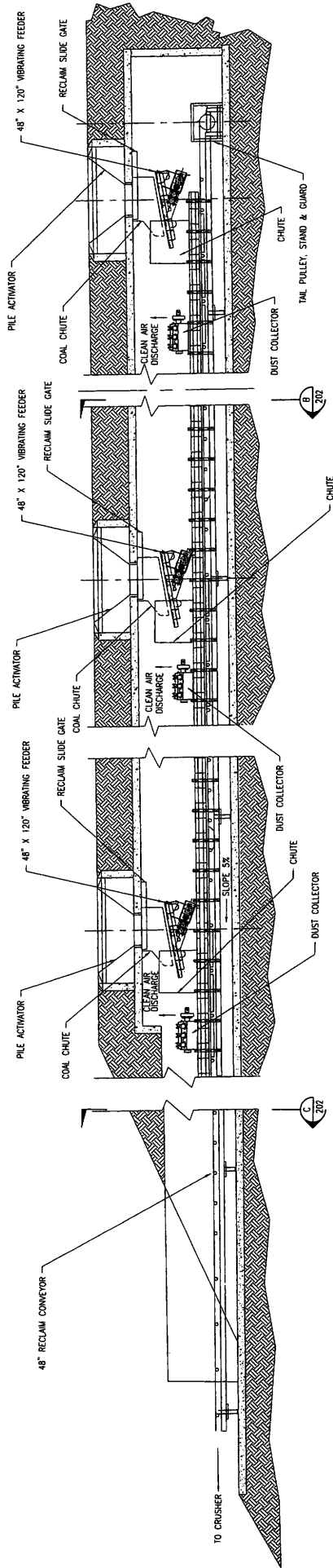
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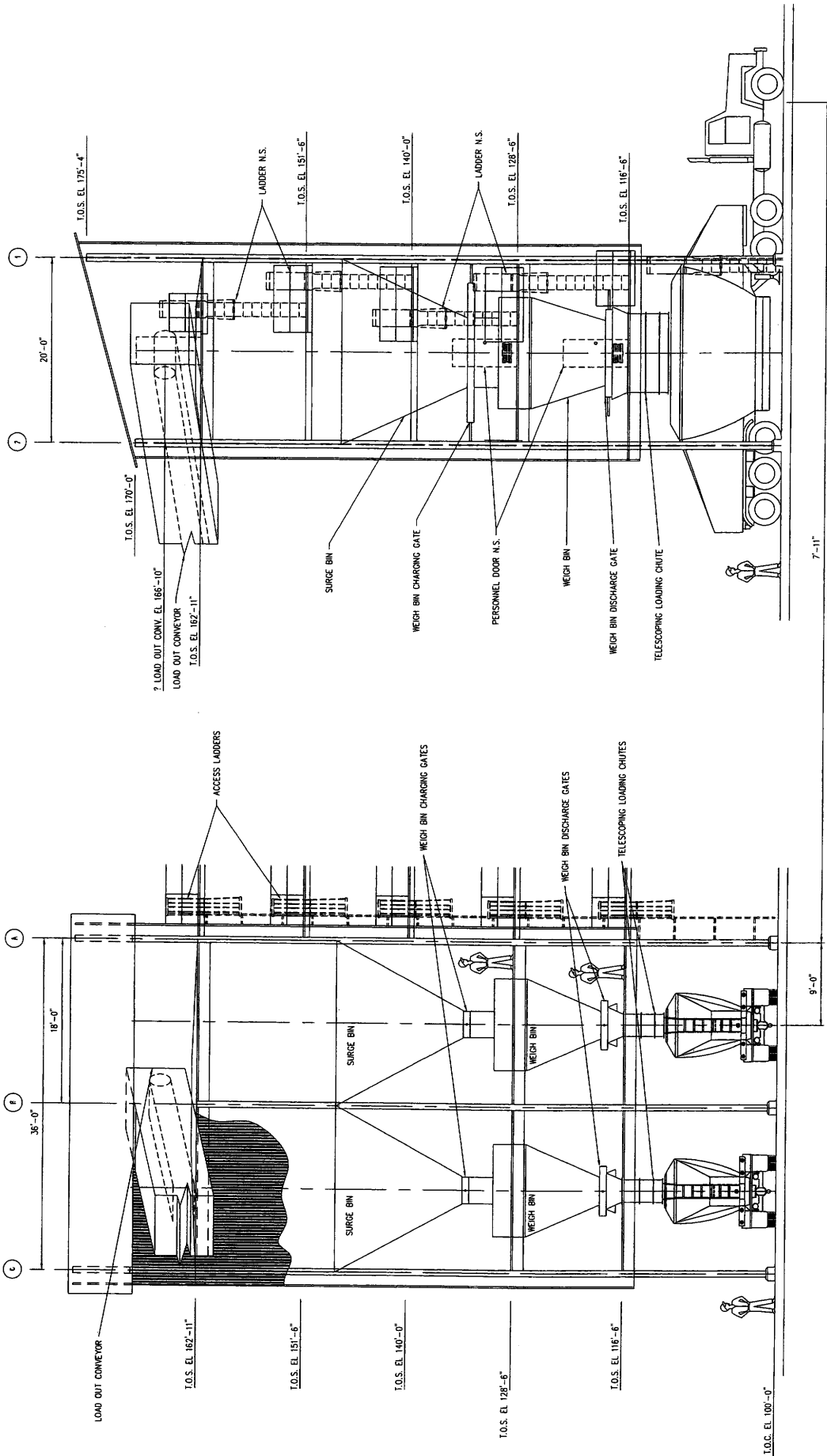


COAL RECLAIM TUNNEL PLAN

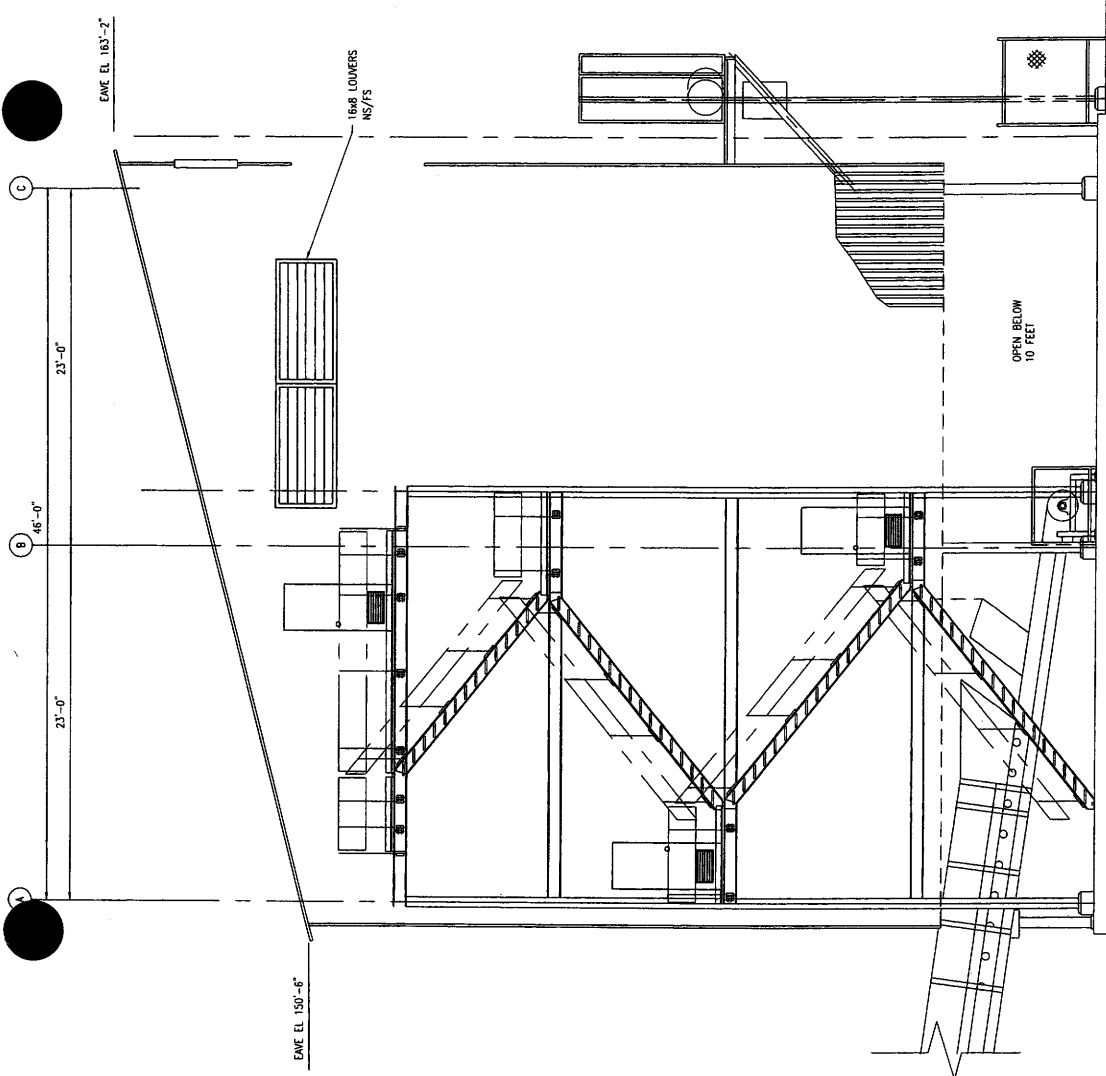


SECTION A-A

UTAH AMERICAN ENERGY										PRECISION SYSTEMS										SCALE										NONE									
LILA CANYON MINE										ENGINEERING, INC.										PROJECT NO. 2006022										PROJECT NO. 2006022									
RECLAIM CONVEYOR PLAN & ELEVATION										9885 South 500 West										DATE NO. 00222-04-01										DATE NO. 00222-04-01									
PRICE, UT										Sandy, Utah 84070 USA										1 OF 1										1 OF 1									
																																							
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PRECISION SYSTEMS ENGINEERING, INC. 9805 South 500 West Sandy, Utah 84070 USA										UTAH AMERICAN ENERGY LILA CAYON MINE LOAD OUT STRUCTURE ELEVATIONS PRICE: UT										06022-G-402		<div>SCALE</div> <div>PROJECT NO. 2006022</div> <div>CADD NO. 06022-CA-401RevA.dwg</div> <div><div>A</div></div>
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ELEVATION  
1/4" = 1'-0"  
C 302

**PRELIMINARY**  
THE DIMENSIONS ON THIS DRAWING  
ARE FOR INFORMATION ONLY

UTAH AMERICAN ENERGY  
LILA CAYON MINE  
CRUSHING STRUCTURE ELEVATION  
PRICE, UT

**PRECISION SYSTEMS  
ENGINEERING, INC.**  
9805 South 500 West  
Sandy, Utah 84070 USA

DRAWN	TLW	10/17/07
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PROJECT ENG	xx	
PROJECT MGR		
ENG. MANAGER		
DESIGN MGR		

ENGINEERING RECORD

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54

RE

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DATE					

[illegible][illegible]

541

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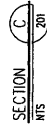
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DRAWINGS

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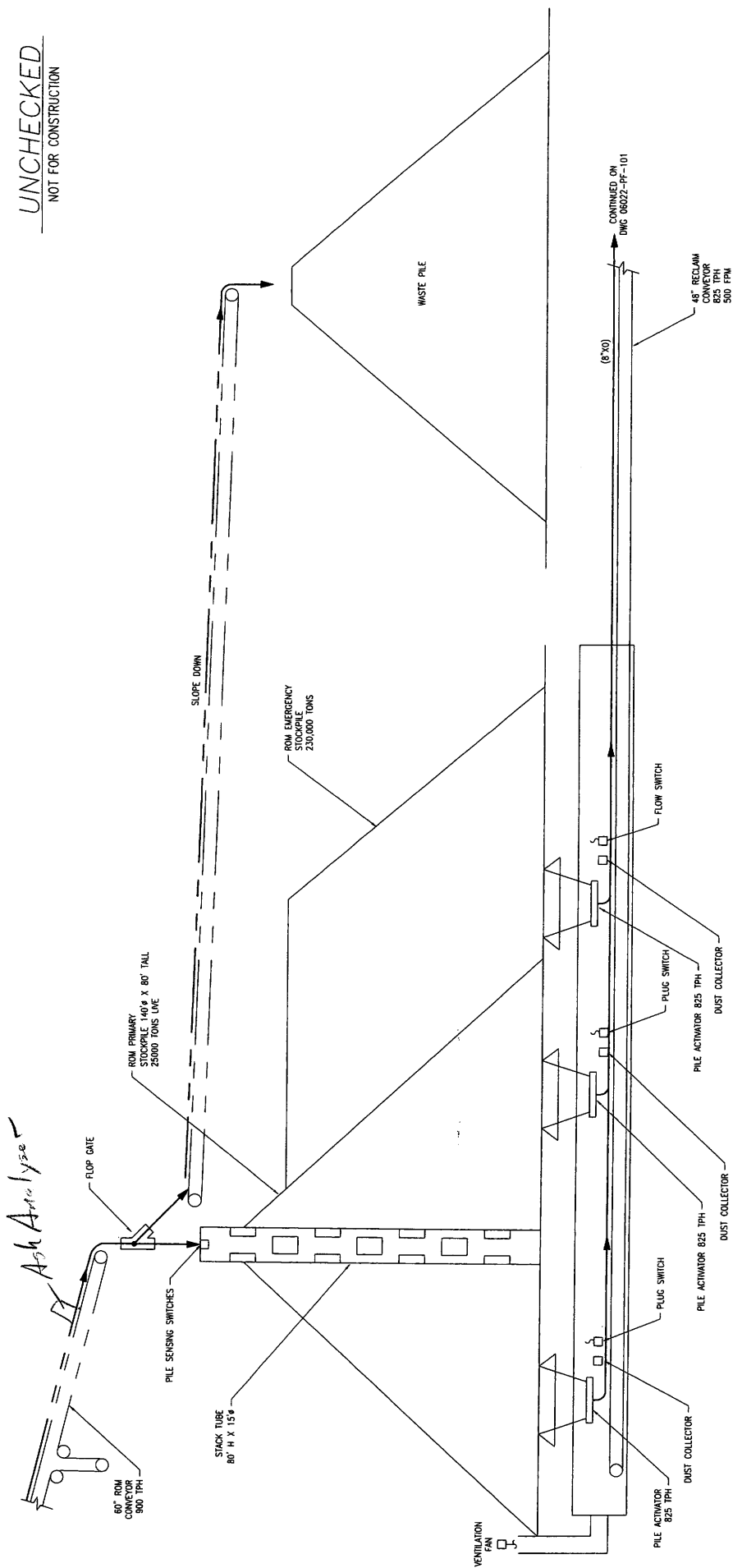
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DWG.



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DRAWN BY: [ ] CHECKED BY: [ ] PROJECT NO.: [ ] ENG. NUMBER: [ ] DESIGN YEAR: [ ]										DATE: [ ] TIME: [ ] BY: [ ] FOR: [ ] APPROVED: [ ]										DATE: [ ] TIME: [ ] BY: [ ] FOR: [ ] APPROVED: [ ]																			

UNCHECKED  
NOT FOR CONSTRUCTION



SCALE: NONE		PROJECT NO. 2006022		CADD NO. 06022-PF-100.dwg		06022-PF-100	
UTAH AMERICAN ENERGY		LILA CANYON MINE		PRECISION SYSTEMS ENGINEERING, INC.		PRICE, UT	
PRECISION SYSTEMS ENGINEERING, INC.		8005 South 500 West		Sandy, Utah 84070 USA		DRAWN: 1/13/02	
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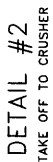
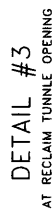


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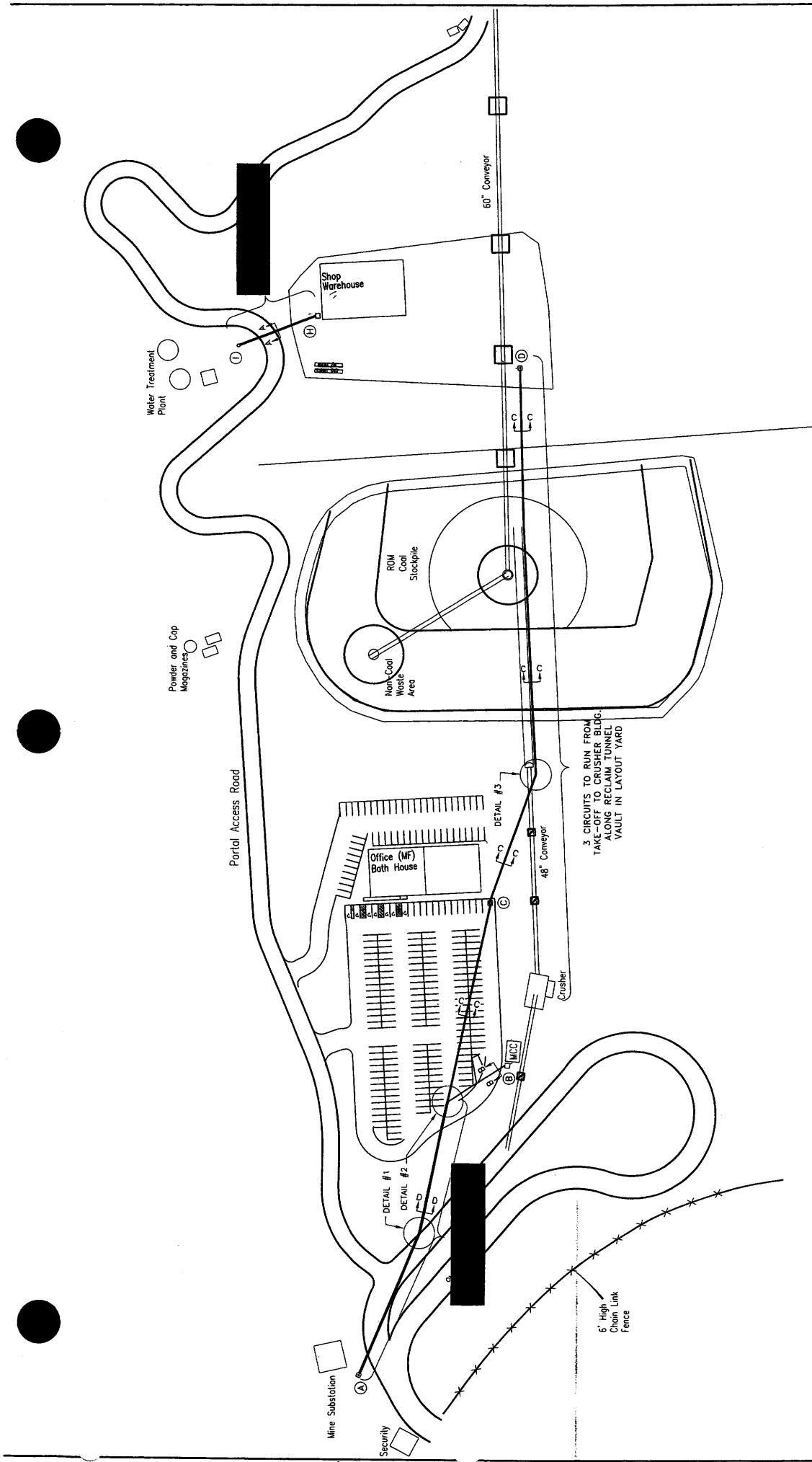


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**LILA CANYON MINE  
PROPOSED SEWAGE SYSTEM**



## **Lila Canyon Mine Proposed Sewage System**

### **Introduction**

The Lila Canyon Mine facilities will be located in the Right Fork of Lila Canyon, which is in the Book Cliffs of Carbon County, approximately 10 miles south of Sunnyside, Utah. Due to the remote location, no sewage treatment facilities are available; therefore, it is proposed to treat wastewater with septic tank/drainfield systems.

Lila Canyon is an ephemeral drainage, flowing only in response to rainfall or snowmelt. There are no streams, springs or water wells located within 1500 feet of the proposed treatment facilities. Undisturbed drainage above the minesite is carried around the minesite in natural channels and beneath the sediment pond in a large culvert. Runoff from the mine site is directed to a sedimentation pond where it is held and treated as necessary to meet effluent standards according to the U.P.D.E.S. Discharge Permit.

The proposed drainfield will be in a soil type known as the Strych, which is a stony, fine, sandy loam. Complete soil descriptions are provided in Chapter 2 and on Plate 2-1. Test holes in the area to a depth of 10 feet show no evidence of bedrock or ground water.

### **General**

Due to area restrictions and available depth for absorption, it is proposed to use seepage trenches for the drainfield. This allows the main trenches to be installed in native soil beneath the unpaved parking area.

Since the mining permit has not been approved at this time, and the proposed drainfield is in a cut area which would require disturbance, it is not possible to conduct actual percolation tests for the design. Based on recent discussions with the Southeastern Utah Health Department District Engineer, and evaluation of soil types in the area, an allowable volume of 1.0 gal/ft<sup>2</sup>/day is considered acceptable for design of the seepage trenches.

It should be noted that the seepage trenches will be constructed per Exhibit 1. Septic tanks, yard boxes and junction boxes will be standard from Dura-Crete, Inc.

## Design

The septic system has been designed according to R317-5 regulations for Large Underground Wastewater Disposal Systems. Water quantities have been estimated at 35 gallons per day per person based on Table 5.2 (Industrial Buildings). The design for each of the separate facilities is based on the expected maximum number of people using the site. Based on 140 people, the system is designed for 4900 gallons per day.

### Facilities Area

(Includes Office, Shop, Bathhouse and Warehouse)

#### Criteria

140 people

35 gallons/day/person

Allowable Q = 1 gal/ft<sup>2</sup>/day

Area = 4900 gpd/1.00 gal/ft<sup>2</sup>/day = 4900 ft<sup>2</sup>

#### Calculations

Q = 140 x 35 = 4900 gpd

Tank = V = 1125 + 0.75 Q = 4800 gallons

Seepage Trench = Allowable Q = 1.00 gal/ft<sup>2</sup>/day

#### Design

Septic Tank - 5000 gallon

Main Drainfield - 4 trenches x 100' long x 6' deep; 18' c-c; Trenches level and connected.

Sidewall Area = 4800 ft<sup>2</sup>

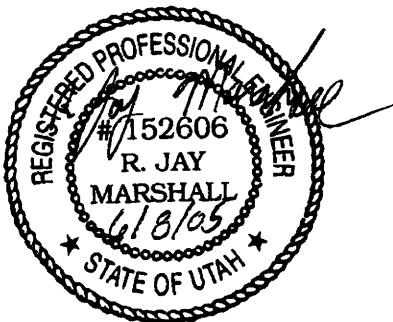
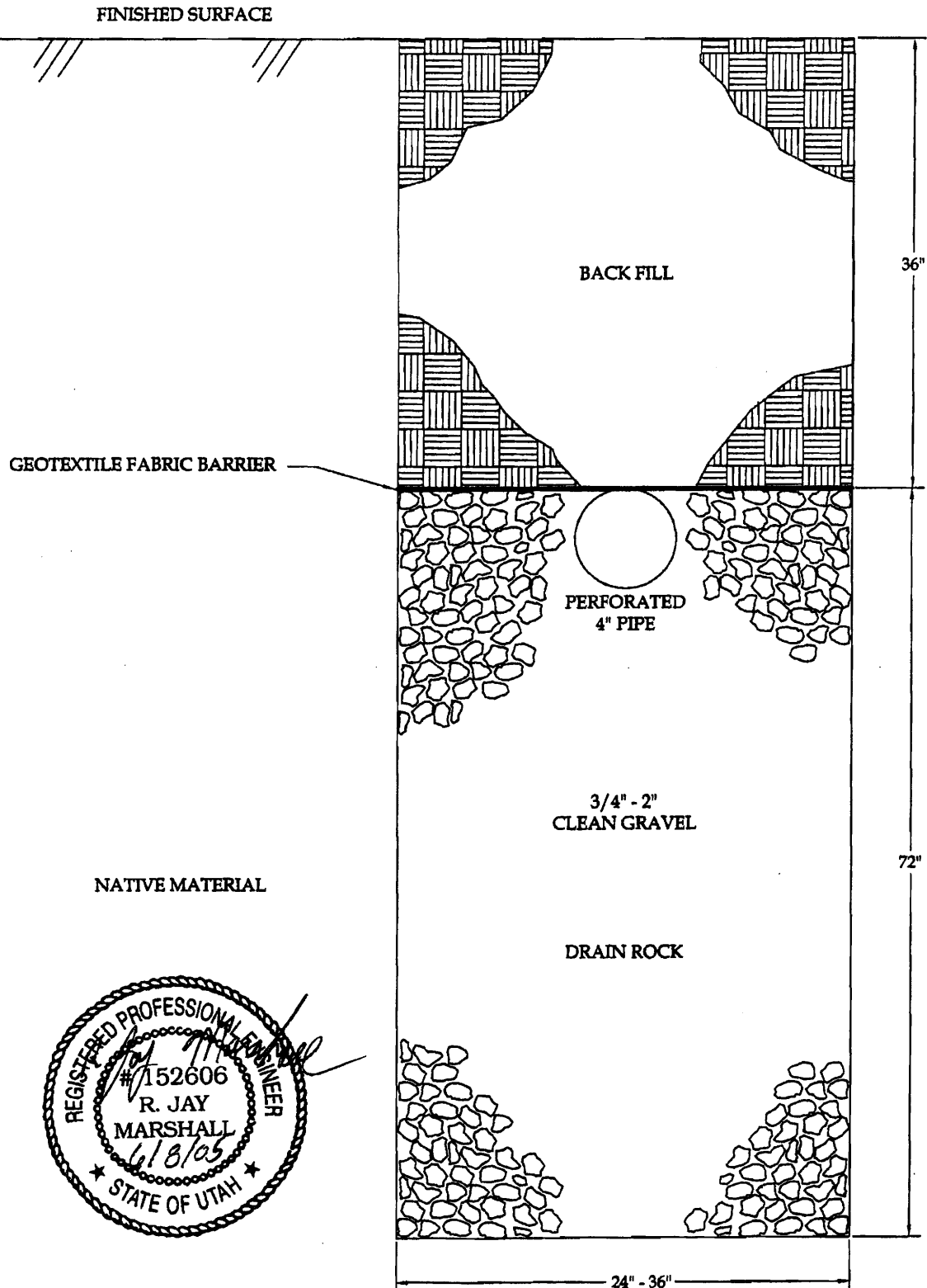


### Summary

The following is a summary of the separate wastewater disposal system design proposed for this minesite:

Location	Main Facilities
Number of People	140
Septic Tank (gal. Required)	4900
Septic Tank (gal. Proposed)	5000
Drainfield (ft <sup>2</sup> Required)	4800
Drainfield (ft <sup>2</sup> Proposed)	4800
Number of Trenches	4
Trench Length (ft.)	100
Trench Depth (ft.)	6

EXHIBIT 1  
SEEPAGE TRENCH  
TYPICAL SECTION



**APPENDIX 5-7**

**LILA CANYON MINE**

**ROCK SLOPE MATERIAL  
(Refuse Pile)**

Appendix 5-7  
Rock Slope Material  
(Refuse)

General

The proposed Lila Canyon Mine includes a site and plan for permanent disposal of coal refuse and rock slope materials. Permanent disposal of refuse, other than rock slope material, will be at UtahAmerican Energy's Wild Cat Loadout. Wild Cat has a designed, approved, permanent refuse pile which serves all of UtahAmerican's Mines. Plate 5-2 shows the location of both a temporary refuse pile (rock pile) and the location where the rock slope material will be buried. Although washing of coal is not proposed, it is likely that some coal processing waste will be generated by the operation of the screening plant and from the mine itself. The rock slope material (refuse) will be generated by the construction of the rock slopes.

Under ground coal mine waste (refuse), other than the rock slope material, will be temporarily stored in the location shown on Plate 5-2. Once enough material has been collected in the temporary refuse pile, the material will be transported by truck to UEI's Wild Cat Loadout or other approved location, for permanent disposal.

The rock slope work will generate approximately 18,660 bank cubic yards of underground development waste (rock slope material). Using a 1.5 bulking or swell factor, the total amount of loose yard of rock slope material to be disposed of in the refuse area is estimated to be 28,000 yd<sup>3</sup>.

The amount of coal processing waste that will be generated by the operation of the screening plant and from the mine itself is difficult to predict but expected to be very insignificant.

The shop/warehouse will be constructed on the material removed from the rock slopes which will contain a very insignificant amount of coal, if any. Under no circumstances will the material removed from the rock slopes contain enough combustibles to induce or continue combustion. In addition the material will be covered with four feet of compacted incombustible material making the fire hazard to the shop/warehouse non existing.

The rock slope disposal site will contain the rock from the rock slopes and will not contain any coal. The rock slope disposal site will not require an MSHA number.

The following sections will describe the ground preparation, placement, and reclamation procedures for the rock slope material. All the rock slope material will be placed in an incised area.

### Ground Preparation

Vegetation and topsoil will be removed from the proposed rock slope storage area and stored in the topsoil pile as shown on Plate 5-2. The subsoil will be pushed to the side using the blade of a caterpillar. The hole that is made by pushing the subsoil to the side will be filled by refuse material from the rock slope development.

### Placement of Rock Slope Material (Refuse)

Rock slope material (refuse) will be dumped into the hole created from the removal of the subsoil. The refuse will be placed in the hole in 12" lifts and compacted using a front end loader. Once the hole is filled to the planned level the subsoil will be placed over the top of the refuse in 12" lifts and compacted with a front end loader, then another hole will be constructed by removing subsoil adjacent to the previous hole. The topsoil removal and storage, subsoil removal, hole being filled with refuse, and subsoil replacement, procedure will be repeated as additional refuse disposal area is needed.

The dumping (placing) of refuse into a prepared hole is NOT the same as "end dumping". End Dumping is defined by the Bureau of Mines as "Process in which earth is pushed over the edge of a deep fill and allowed to roll down the slope."

### Refuse Testing

Material from the rock slope portals will be tested three times during their development. The first test will be during the initial startup of the rock slopes, the second approximately midpoint of the slopes, and the last test will be taken near the completion of the slope project.

Testing parameters for the rock slope material will be as per Table 1.

### Spreading and Compaction

Compaction will take place using a wheeled loader during the filling operation. Upon final reclamation the topsoil will be redistributed over the rock slope storage area (refuse) and reclaimed as per chapter 3. The total cover over the rock slope material area, when considering the subsoil and topsoil, will be a minimum of 4'.

### Pile Configuration and Drainage

The hole created for the rock slope material will be filled with the slope rock. The subsoil will be redistributed and graded to allow drainage and prevent impoundment of water on the pile. Runoff from the rock slope storage area (refuse) will be directed into the Sediment Pond as shown on Plate 7-5.

### Site Inspection

The rock slope material storage area (refuse) will be inspected under the supervision of a qualified registered professional engineer during construction; this will continue until the area has been graded, covered, and reseeded. Inspections will include observations of any potential safety hazards, to assure that organic material and topsoil is removed before deposition and that construction and maintenance are being performed in accordance with the design plan.

If such inspection discloses a potential hazard, the inspector will immediately notify the regulatory authority of the hazard and the emergency procedures to be implemented.

### Reclamation

Upon completion of the active mining operation, the topsoil will be redistributed over the previously placed subsoil. Finally, the rock slope material disposal area (refuse) area will be covered with topsoil and seeded according to the approved plan. Runoff from the reclaimed disposal area will continue to flow to the sediment pond until Phase II Bond Release requirements for the reclaimed site are met.

### Factor of Safety

Using Geosystems Software SB-Slope Version 3.0 stability analysis for the refuse pile was run. To minimize the factor of safety, the minimum strength materials with

maximum densities were used in these calculations. Under these conditions the minimum Factor of Safety was 16.19.

## TABLE 1

### Rock Slope Material

List of  
Test Parameters for Acid & Toxic Material  
(As per personal conversation with Priscilla 12/29/04)

Ph  
EC  
SAR  
Available Boron  
Soluble Selenium  
Acid Base Potential  
Texture  
Water Holding Capacity  
Total Nitrogen  
Nitrate as Nitrogen  
% Organic Carbon

## **Reclamation and Enhancement Plan Associated with the Lila Canyon Mine Site**

### **I. Description of Existing Area**

The Lila Canyon Mine constitutes approximately 42.6 acres within the disturbed area boundary. For the purpose of reclamation, the total area is divided into two units. The upper unit consists of the water treatment area and the portal pad. The lower unit consists of the majority of the facilities; bath house, parking, shop, and coal handling structures, (See Plate 5-2 Surface Facilities). In addition to the above, there is a spoil/refuse disposal area and a sediment pond. The actual disturbance, pads, silos, coal processing structures, parking constitute a total of 33.86 acres. The pond is the only structure that will remain through phase 2 bond liability.

This new disturbance constitutes a loss of approximately 40 acres of critical high value big game winter range. In addition, it distracts from the general aesthetics of the upper reaches of Lila Canyon.

The following reclamation plan is designed to rehabilitate this area to such a degree that the appearance would be aesthetically compatible with the adjacent undisturbed area and reestablish a desirable and diverse vegetative cover that will enhance wildlife habitat and domestic grazing.

### **II. Demolition and Clean Up**

After abandonment the area will be cleared of all mine related material and structures. The majority of the coal handling equipment; belt lines, conveyors, and some of the metal fab buildings, will be sold as used equipment and removed prior to demolition. The balance of the structures will be demolished utilizing heavy equipment such as; dozers, loaders, trackhoes, various shears for steel dismantling etc. The trash (non metal, non concrete material) will be removed from the site and hauled to an approved land fill. Any contaminated soil or debris, such as coal refuse, that has petroleum additives would be hauled to an approved disposal site. The balance of the non-combustible, non-ferrous debris such as concrete would be buried on site.

All material with salvage value would be removed by a licensed salvage company.

### **III. Reclamation Plan**

Following the cessation of mining, the portal cuts can be brought back to approximate original contours.